



GW 110 +S
RAIL WEB GRINDING MACHINE

TRANSLATION OF ORIGIN

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Published by:

Elektro-Thermit GmbH & Co. KG
Chemiestraße 24
06132 Halle (Saale), Germany

Phone: +49 345 7795-600

Fax: +49 345 7795-770

E-Mail: et@goldschmidt.com

Internet: www.goldschmidt.com

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Use of trademarks

The names of companies and products used in these operating instructions may be registered trademarks of their respective manufacturers.

HISTORY OF CHANGES

Version	Date	Change / Description	Author	Approved by
0.0	2024-03-26	Initial issue	Goldschmidt Holding GmbH	Elektro-Thermit GmbH & Co. KG
1.0	2025-01-30	Important changes: Operating unit added, Changes to the model update	Goldschmidt Holding GmbH	Elektro-Thermit GmbH & Co. KG

STRUCTURE AND CONTENT OF SAFETY INSTRUCTIONS

This operation manual contains safety instructions that point out potential hazards and risks that could result in personal injury, property damage, and/or environmental damage. The way these safety instructions are structured, as well as their contents, is based on the ANSI Z535 standard.

Safety instructions related to personal injury

	DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.
	WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.
	CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury..

The contents of all safety instructions related to personal injury have been structured in conformity with the German SAFE method:

SIGNAL WORD/ SYMBOL	S – Schlagwort (keyword)
	A - Art und Quelle der Gefahr (type and source of hazard)
	F - Folgen bei Nichtbeachtung (consequence of failure to observe the instruction)
	E - Entkommen (how to avoid the hazard)

Safety instructions related to property damage and the environment

	NOTICE (white text on a blue background) indicates potential property damage.
	NOTICE (white text on a green background) indicates potential environmental damage.

General notes

	NOTICE (black text on a white background) indicates general information that needs to be taken into account when handling the product.
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This operation manual has safety instructions at various points in order to ensure that meaningful information is provided in regard to potential hazard sources:

- Introductory safety instructions (at the beginning of the document)
- Section-specific safety instructions (at the beginning of a section)
- Embedded safety instructions (for specific instructions).

SAFETY INSTRUCTIONS

Safety instructions related to personal injury



RISK OF INJURY.

Working under the influence of drugs and/or alcohol will result in serious injury.

Consuming drugs and/or alcohol in the work area is strictly prohibited.

Operators under the influence of drugs and/or alcohol are strictly prohibited from operating the GW 110 +S battery-powered rail web grinding machine.



RISK OF INJURY.

Unforeseeable operating conditions may occur if any of the guards or safety devices on the rail web grinding machine are faulty or removed. Personal injury and property damage may occur.

- Before working with the machine, make sure to familiarize yourself with the entire operation manual.
- Do not, under any circumstance, operate the machine if it is not in proper working condition! Make sure to always observe all instructions in this operation manual!
- Follow all safety instructions without fail!



RISK OF INJURY.

Flying sparks pose a risk of injury to operators and other people in the vicinity. Highly flammable objects may ignite.

- Wear flame-resistant clothes when working.
- Wear appropriate eye protection.
- Remove any highly flammable objects from the vicinity.



RISK OF INJURY.

There is a risk of injury due to fire and/or explosion.

Damaged batteries and incorrectly handled batteries may behave in an unforeseeable manner, which can result in a fire or explosion and the associated risk of injury.

- Do not, under any circumstance, use any damaged or modified batteries!
- Properly dispose of all damaged batteries!
- Do not expose the batteries to fire or extreme temperatures!
- Follow all charging instructions and make sure to never charge the batteries outside of the temperature range specified in the manual provided by EGO (please refer to the EGO operation manual, Chapter 1.4 "Further applicable documents" on page 4).

**RISK OF INJURY.**

There is a risk of injury posed by repairs that are not carried out correctly.

Repairs to the rail web grinding machine must be carried out exclusively by Elektro-Thermit GmbH & Co. KG or specially trained personnel.

- Work on electrical system components must be carried out exclusively by qualified electricians.
- Parts and components must be replaced exclusively with identical spare parts. When replacing a component, make absolutely sure to observe all the component manufacturer's instructions and specifications.

**HOT SURFACES.**

Hot surfaces pose a burn hazard.

The surfaces of the grinding wheel, the grinding shaft, the guard, and/or the rail may be hot after grinding and result in burns or other irreversible injuries if touched.

- Make sure to always wear all necessary personal protective equipment (especially work gloves).
- Let the components cool down first before changing the grinding wheel or carrying out maintenance work.
- Let the rail cool down after welding (below 40°C / 104°F).

**RISK OF INJURY.**

Unauthorized access poses a risk of injury.

Whenever you are not operating the rail web grinding machine, make sure that it cannot be turned on by accident.

Remove all batteries from the rail web grinding machine when not operating it.

**HEARING LOSS.**

Noise levels during grinding may result in permanent hearing loss.

Make sure to always wear hearing protection.

Individuals who are not working with or on the grinding machine must stay at a minimum distance of 1.5 m (59,05 Zoll).

Agree on clear and effective hand signals for communication.

**RISK OF INJURY.**

Incorrectly operating the rail web grinding machine poses a risk of injury.

This operation manual must be accessible to operating and maintenance personnel at all times!

Before any work is carried out with the rail web grinding machine, the corresponding individuals must have read, understood, and observed this operation manual!

**RISK OF INJURY.**

Poor weather conditions (rain, snow) pose a risk of injury due to poor visibility or slippery surfaces.

- Stop all work if the surfaces you will be standing on are slippery.
- Stop all work if visibility is poor.

**RISK OF INJURY.**

There is a risk of injury due to abnormal vibrations.

If you notice any abnormal vibrations while working with the rail web grinding machine, stop operating the machine immediately.

- Start troubleshooting (please refer to Chapter 7 "Maintenance and Care" on page 43).
- Turn the rail web grinding machine off until the cause of the vibrations has been found and fixed.
- Check to make sure that the grinding wheel is properly mounted on the grinding shaft and adjust it if necessary (please refer to Chapter 7 "Maintenance and Care" on page 43).

**RISK OF INJURY.**

There is a risk of injury due to failure to pay attention, as well as due to signs of mental fatigue that increase the risk of personal injury and property damage.

- Always observe all legally required breaks.
- Do not, under any circumstance, work alone. Make sure to rotate the task on a regular basis if possible.

**RISK OF INJURY.**

There is a risk of injury posed by the machine's weight.

Physically demanding work can harm your body in the medium and long terms.

- Always observe all legally required breaks.
- Do not, under any circumstance, work alone. Make sure to rotate the task on a regular basis if possible.

**RISK OF INJURY.**

There is a risk of injury posed by the machine's weight.

The rail web grinding machine weighs 23 kg / 51 lbs without batteries. There is a risk of injury when the machine is being transported.

- Due to ergonomic reasons, the rail web grinding machine is only allowed to be carried by one person if there are no batteries in the battery compartment.
- If there are any batteries in the compartment, two people must carry the rail web grinding machine.
- When carrying the machine, make sure to be properly balanced and get a good footing.
- Always carry the machine from the handles only.
- Always wear safety footwear.

**RISK OF INJURY.**

There is a risk of injury posed by hazards from the rail web grinding machine's surroundings.

- Please note that it is impossible for this operation manual to determine and list all the hazards that may be posed by the rail web grinding machine's surroundings and by unforeseeable operating conditions.
- Do not make any alterations to the rail web grinding machine that could result in a change to the way it works.

**RISK OF INJURY.**

Failure to pay attention and mental or physical fatigue will increase the risk of personal injury and property damage.

- Always observe all legally required breaks.
- Do not, under any circumstance, work alone. Make sure to rotate the task on a regular basis if possible.

Safety instructions related to property damage

NOTICE

Make sure that there are no highly flammable or explosive substances in the vicinity. If necessary, remove any combustible substances from the work area and ensure that there is adequate ventilation.

NOTICE

Do not place the battery-powered rail web grinding machine in water or hose it down.

NOTICE

Genuine spare parts and/or accessories authorized by the manufacturer help ensure safety.
Using any other accessories will void our liability for resulting damages.
The manufacturer hereby disclaims all liability for any components retrofitted by the operating company.

NOTICE

Alterations, repairs, and modifications require the manufacturer's explicit approval.

NOTICE

Make sure to keep all safety labels in legible condition! If safety labels are damaged or go missing at any point in the machine's service life, the operating company must ensure that they are replaced properly.

NOTICE

The manual GW 110 +S must be read carefully before starting any operation, assembly, installation, and/or maintenance work!

NOTICE

A hard copy of the manual GW 110 +S must be available in legible condition at the location of use.

NOTICE

In addition to the information and instructions in this operation manual, all applicable accident prevention regulations and environmental and occupational health and safety regulations must be complied with. Moreover, all of the operating company's accident prevention rules and policies must be followed.

All safety requirements set forth by the applicable rail authorities for work on tracks and in the vicinity of tracks must be followed without fail!

Safety instructions related to the environment

Environmentally hazardous substances must be properly disposed of in compliance with all applicable requirements and regulations.

Make sure to observe the manufacturer's data sheets and safety data sheets.

Comply with the disposal regulations that apply in the relevant U.S. state!

For more detailed information, please refer to Chapter 9 "Disposal" on page 66.

NOTICE

Properly dispose of all packaging material.

For more detailed information, please refer to Chapter 9 "Disposal" on page 66.

RESIDUAL RISK WARNING

All the components in the GW 110 +S battery-powered rail web grinding machine have been designed in line with the state of the art. Regardless of this, however, their use may pose hazards to the operator and to third parties, the environment, and/or other equipment. Accordingly, the GW 110 +S battery-powered rail web grinding machine must be used only when it is in proper working condition. Moreover, it must always be used in conformity with all applicable safety rules and regulations and the manual GW 110 +S.

Risk of workplace injury

Welding and grinding work both take place in work environments where it is possible for welding and other work to be in progress at the same time and in the immediate area. Accordingly, there is a higher risk of injury due to scenarios including, but not limited to:

- Rail traffic on adjacent tracks
- Being struck or run over by construction vehicles
- Getting caught or entrapped in construction vehicles or other moving machinery
- Slipping on slippery, wet, or oily surfaces
- Tripping on obstacles
- Falling onto pointed or sharp objects
- Burns due to hot surfaces

Make sure to take the following precautions:

- Observe all work site rules.
- Make sure that there is nobody else within the machine's danger zone.
- Make sure to work only if there is adequate lighting.
- Be careful and alert at all times.
- Make sure that there is adequate ventilation.
- Do not, under any circumstance, leave the running drive unit unsupervised.

ABBREVIATIONS

Units of measure	
%	Percent
°C	Degrees Celcius
°F	Degrees Fahrenheit
Ah	Ampere-hour
cST	Centistokes (1 cSt = 1 mm ² /s)
dB (A)	Decibels at a specific measuring distance
kg	Kilogram
kW	Kilowatt
L	Liter
L/min	Liters per minute
lbs	Pounds
mm	Millimeter
PS	Metric horsepower (1 PS = 0.735 kW)
rpm	Revolutions per minute
V	Volts
General	
max	maximum
min	minimum
Example:	for example

GLOSSARY

Symbols and pictograms

Symbols	Explanation
	Warning: hot surface
	Mandatory action: read and follow the operation manual
	Mandatory action: wear protective clothing
	Mandatory action: wear safety footwear
	Mandatory action: wear work gloves
	Mandatory action: wear safety eyewear

Symbols	Explanation
	Mandatory action: wear hearing protection
	Mandatory action: wear a mask
	Pictogram: crush hazard posed by moving parts
	Pictogram: read and follow the operation manual

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1 INTRODUCTION

Summary

This section provides information regarding the scope and content of this operation manual, as well as references to additional documents.

1.1 Information about this document

This operation manual describes how the GW 110 +S battery-powered rail web grinding machine works and its components.

This operation manual must be:

- Considered part of the product
- Stored safely throughout the product's entire service life
- Passed on to any subsequent users

1.2 Validity

This operation manual (version 1.0 (translation of the original)) is meant for the following machine configuration:

- battery-powered rail web grinding machine GW 110 +S with serial number GW 110 +S-0030 or higher.

1.3 Requirements for operators

The operators who will be using the GW 110 +S battery-powered rail web grinding machine must:

- Be at least 18 years old
- Have the required qualifications for the job
- Have received training regarding how to operate the machine properly
- Have passed a medical assessment of fitness for work

NOTICE

All applicable accident prevention regulations must be complied with without fail. Moreover, all operation and maintenance manuals must be followed without exception.

NOTICE

The operating company must make sure that its operating personnel has fully understood the manual GW 110 +S's contents.

1.3.1 Skills

Only individuals who meet the following requirements are allowed to work with and on the machine:

- Operators must have read and understood this operation manual in its entirety.

- Operators must be in perfect health and in full possession of their mental and physical faculties.
- Operators must be rested and must not be under the influence of any drugs, alcohol, or medications that could have a negative impact on their ability to react to situations and absorb information.
- Operators must be regularly briefed on impediments, hazards, fire safety rules, and special rules regarding what to do and what not to do.
- Operators must wear all required personal protective equipment in order to ensure that all occupational health and safety requirements are met.
- Operators must always observe their employer's rules and policies regarding safety and accident prevention and comply with all regulations that are relevant to personal safety and the safety of third parties.

1.3.2 Qualification levels

In order to ensure that the machine will be operated safely and as intended, two different qualification levels must be considered:

- Operating personnel:

Is trained on how to regularly operate the machine, receives continuous training regarding technical innovations, and has the required basic skills and understanding needed to work with the GW 110 +S battery-powered rail web grinding machine.

During their initial training session, operators must receive training regarding the following main points:

- How the machine works
 - An explanation of the individual components
 - An explanation of potential hazards
 - How to use the machine
 - How to identify malfunctions and other issues
- Maintenance personnel/specialized personnel:

Personnel that has received special training and briefing intended specifically for maintenance, servicing, and/or repair work on the machine.

Table 1-1 on page 3 lists the various individual tasks that apply to each of the two qualification levels.

Tab. 1-1 Qualification level

Occupation	Qualification level	
	Operating personnel	Maintenance/specialized personnel
Working with the machine, operating the machine	x	x
Cleaning the machine	x	x
Visual inspection	x	x
Identifying malfunctions and other issues	x	x
Maintenance work		x
Troubleshooting and repairs		x

1.3.3 Personal protection equipment

Provided that the operating company does not set forth any additional rules, policies, or guidelines, the following protective equipment must be worn when working with or on the machine:

Tab. 1-2 Personal protection equipment

Símbolo	Protective equipment	Used for
	Wear protective clothing Welding clothing in conformity with EN 470-1; if necessary, high-visibility clothing in conformity with EN 471	• Transport • Preparation • Operation • Shutdown • Maintenance and • Cleaning and maintenance
	Wear safety footwear (high-top S3 safety footwear in conformity with EN ISO 20345)	
	Wear work gloves (heavy-duty gloves in conformity with EN 388 (4242), EN 402; if necessary, heat-resistant work gloves in conformity with EN 407)	

Tab. 1-2 Personal protection equipment <continued>

Símbolo	Protective equipment	Used for
	Wear safety eyewear	- Operation (grinding)
	Wear a mask	
	Wear hearing protection	

1.4 Further applicable documents

NOTICE	Passing the manual GW 110 +S on to third parties requires written consent from Elektro-Thermit GmbH & Co. KG.
NOTICE	The manufacturer's technical documentation is protected by copyright.
NOTICE	In addition to the information and instructions in this operation manual, all applicable accident prevention regulations and environmental regulations must be complied with. Moreover, all of the operating company's accident prevention rules and policies must be followed. All safety requirements set forth by the applicable rail authorities for work on tracks and in the vicinity of tracks must be followed.

Additional applicable documents are listed in the tables below and are an integral part of the included contents:

Tab. 1-3 Additional applicable documents – supplier documentation

Technical documentation (supplier documentation)
Operation manual for EGO Power+ 56V-ARC-Lithium™ battery and charger „700 W RAPID+ charger CH7000E“

Tab. 1-4 Additional applicable documents – manufacturer documentation

Technical documentation (manufacturer documentation)
Work instructions for the relevant Thermit® welding process

1.5 Scope of delivery

NOTICE

The EGO Power+ 56V-ARC-Lithium™ batteries and the charger are not included.

The included contents, as defined contractually, are listed in the following table (please refer to Table 1-5 on page 5):

Tab. 1-5 Scope of delivery

Quantity	Designation
1	GW 110 +S battery-powered rail web grinding machine
1	8" x 1" x 5/8" grinding wheel

2 CONSTRUCTION DESCRIPTION

Summary

An overview of the GW 110 +S battery-powered rail web grinding machine, the names of the various sub-assemblies and components, and what they do.

NOTICE

Unauthorized alterations are impermissible.
The manufacturer hereby disclaims all liability for any resulting personal injury and/or damages to machinery and other property.

NOTICE

The manufacturer hereby disclaims all liability for any improper or unintended use and any resulting injury and/or damages.

NOTICE

Any other use of the GW 110 +S, including any use that extends beyond the intended use, is impermissible.

2.1 Function description

The battery-powered rail web grinding machine GW 110 +S can be used to remove protruding welds, rust, and markings from a rail web.

The GW 110 +S battery-powered rail web grinding machine is an electric machine that is powered with two EGO Power+ 56V-ARC-Lithium™ rechargeable batteries. These batteries feature a charge status indicator.

The GW 110 +S battery-powered rail web grinding machine is meant to be used with grinding wheels with a diameter of 8" (20.32 cm), a thickness of 1" (2.54 cm), and a 5/8" (1.58 cm) arbor hole. In addition, the grinding wheels must be suitable for use with speeds of up to 3400 rpm.

In order to make the machine more ergonomic, the handlebar's height can be adjusted with a locking lever.

The rail web grinding machine's motor is turned on with a key switch. Meanwhile, the grinding drive is turned on with a grinding drive ON/OFF (thumb switch). Finally, continuous variable speed control makes it possible to adjust the grinding speed manually with a control lever.

In addition, the GW 110 +S battery-powered rail web grinding machine features an LED display that provides an overview of the machine's status with various indicators.

2.2 Intended use

The GW 110 +S battery-powered rail web grinding machine is intended to be used to remove excess material from the web area on rails. When used properly, the machine will help reduce operator fatigue and strain.

The GW 110 +S battery-powered rail web grinding machine is an electric machine that is powered with two EGO Power+ 56V-ARC-Lithium™ rechargeable batteries.

The GW 110 +S battery-powered rail web grinding machine is meant to be used with grinding wheels with a diameter of 8" (20.32 cm), a thickness of 1" (2.54 cm), and a 5/8" (1.58 cm) arbor hole. In addition, the grinding wheels must be suitable for use with speeds of up to 3400 revolutions per minute.

The following are also part of the machine's intended use:

- Reading and observing the operation manual
- Observing all maintenance intervals
- Complying with all applicable occupational health and safety and accident prevention regulations throughout the machine's entire lifecycle
- Exclusively using operators who have the required technical training, and authorization from the operating company, to be able to carry out work with and/or on the machine

2.3 Operating conditions

NOTICE	Do not, under any circumstance, operate the machine if actual conditions differ from these operating conditions.
NOTICE	Before putting the machine into operation, always check to make sure that all operating conditions are met.
NOTICE	If the batteries have gotten too cold (e.g., overnight), let the machine run idle for a few minutes so that the batteries will be able to reach their operating temperature. Running the motor under load while the batteries are too cold, the running time of the batteries will be significantly reduced.

Table 2-1 on page 7 describes the operating conditions in greater detail:

Tab. 2-1 Operating conditions GW 110 +S

Operating conditions	
Ambient temperature when operating the machine	-20 °C to +40 °C ((-4°F to +104°F)
Ambient temperature when charging the batteries	+5 °C to +40 °C (+41°F to +104°F)

The following conditions need to be met while the machine is being operated:

- It is strictly prohibited to defeat or otherwise disable guards, safety devices, and other components.
- Do not operate the machine if it is not in proper working condition.
- All inspection and maintenance intervals must be observed.
- Do not operate the machine in hazardous locations or in the vicinity of flammable or explosive liquids or gases.
- The work area must be adequately lighted in order to make it possible to identify potential hazards in a timely manner.
- The machine must only be operated in a dry working environment.
- Do not operate the machine on gradients of 10° or more.

2.4 Main sub-assemblies

Figure 2-1 on page 8 shows the main sub-assemblies on the battery-powered rail web grinding machine GW 110 +S.

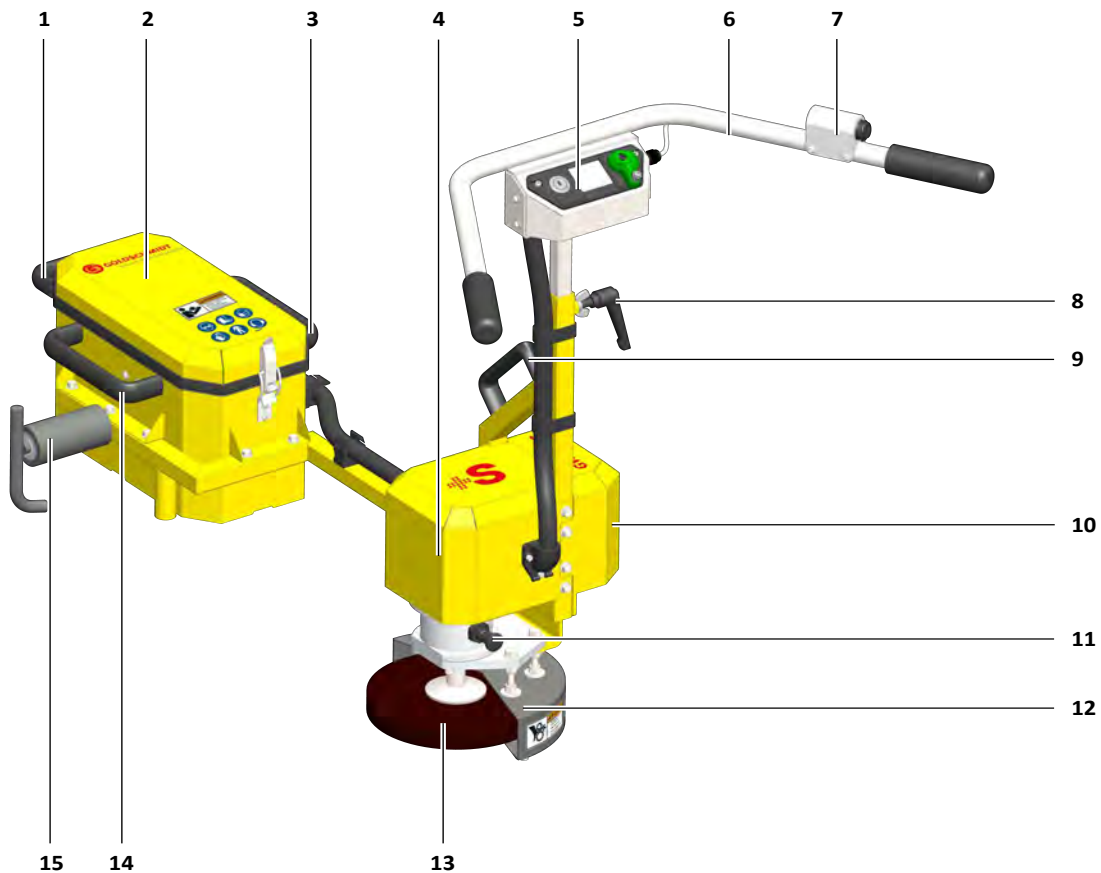


Fig. 2-1 Main GW 110 +S sub-assemblies

1	Handle	6	Handlebar with handles	11	Locking pin grinding shaft
2	Battery compartment	7	Grinding drive ON/OFF (thumb switch)	12	guard
3	Bumper guard	8	Locking lever	13	Grinding wheel
4	Motor cover	9	Handle	14	Bumper guard
5	Control unit with LED display	10	Cover for electronics	15	Guide roller

2.4.1 Rating plate

The rating plate can be found underneath the cover for the electronics on the right side of the battery-powered rail web grinding machine GW 110 +S (please refer to Figure 2-2 on page 9).

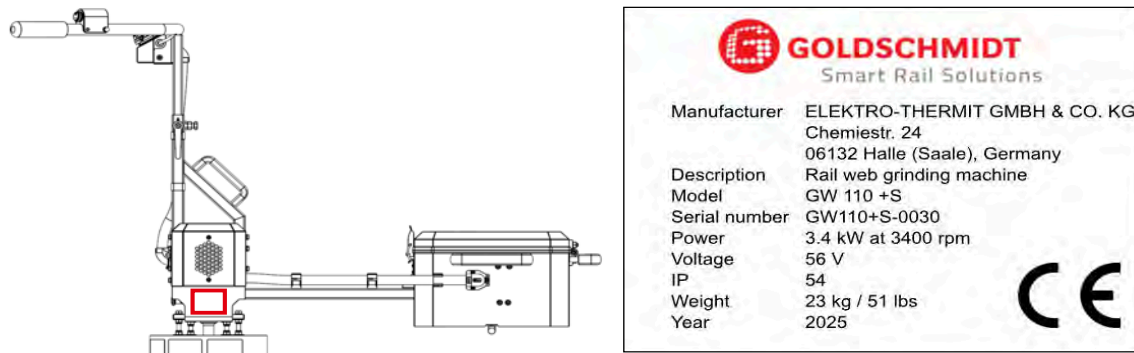


Fig. 2-2 **Rating plate**

The rating plate contains the following information:

- Manufacturer information
- Product model
- Year of manufacture
- Weight
- Voltage
- Serial number
- CE marking.

NOTICE

The operating company must make sure that the rating plate is replaced if it becomes damaged or goes missing.

2.5 Operator control and display elements

The battery-powered rail web grinding machine GW 110 +S features a control unit on its handle-bar.

The following sections describe the individual controls and indicators on this unit.

2.5.1 LED display

The control unit has a backlit LED display that provides an overview of the grinding machine's status (please refer to Figure 2-3 on page 10).

When the electronics are on, the LED display will be turned on automatically as well. When the motor is turned off, the LED display will be turned off automatically.

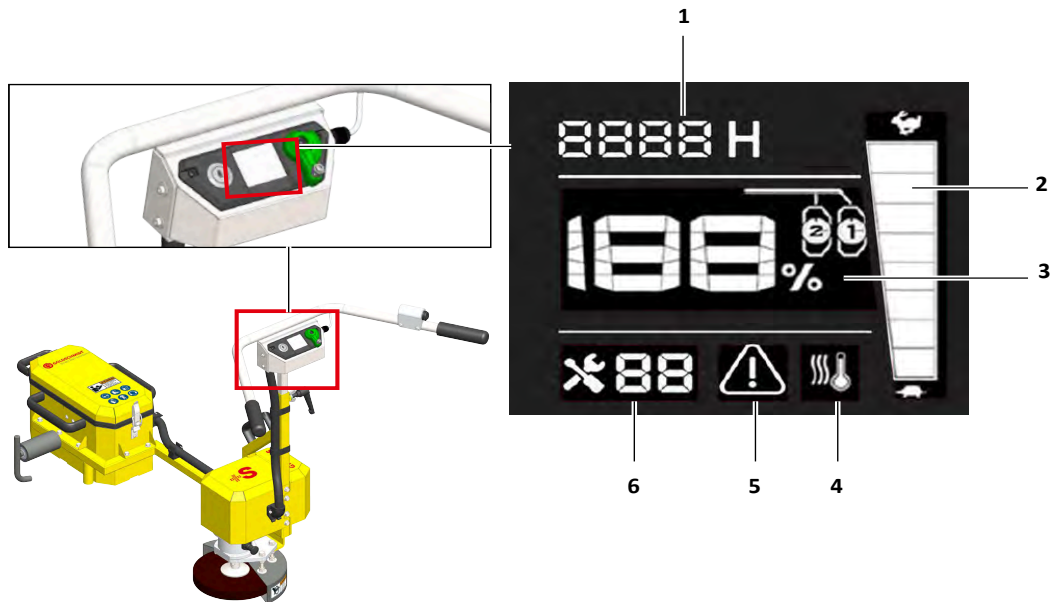


Fig. 2-3 LED display

1	Total run hour	3	Charge status indicator	5	Blockage indicator
2	Speed display	4	Overheating indicator	6	Fault indication

2.5.2 Key switch

The Key switch is found on the left side of the control unit (Figure 2-4 on page 10) and is used to turn on the electronics and the motor.

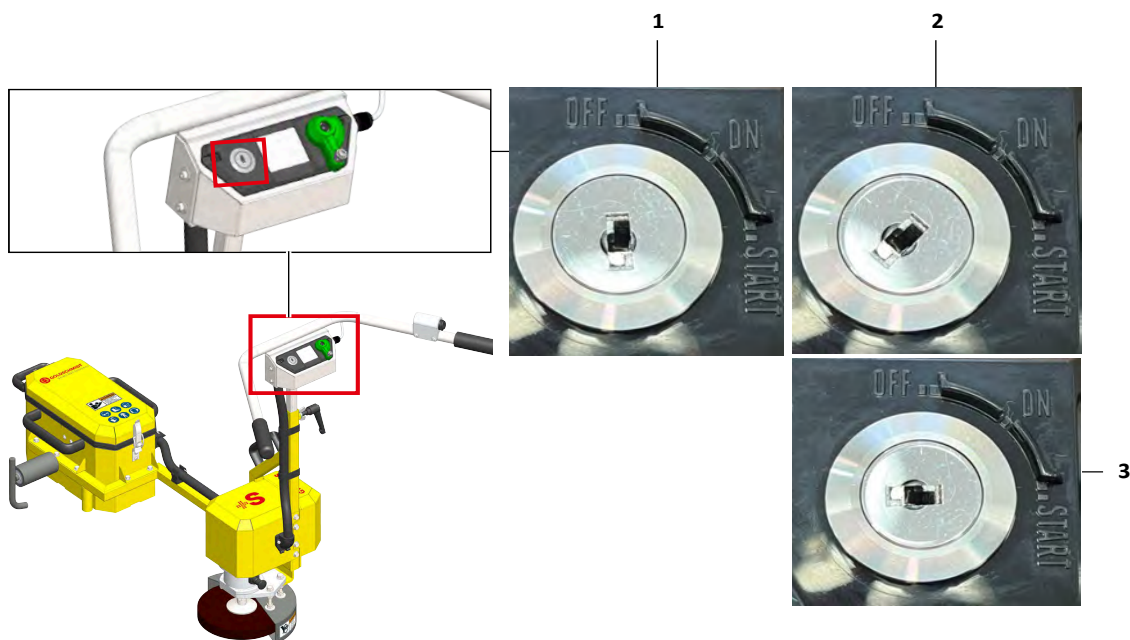


Fig. 2-4 Key switch

The Key switch has the following positions available:

Position	Description
1 "OFF" position	Turning the Key switch to the "OFF" position, will turn off the motor and the LED display.
2 "ON" position	Turning the Key switch to the "ON" position will turn on the electronics and the LED display.
3 "START" position	Turning the Key switch to the "START" position, the motor is ready for operation and is waiting for the grinding drive ON/OFF (thumb switch).

2.5.3 control lever

The control lever is found on the right side of the control unit (Figure 2-5 on page 11). This control lever makes it possible to use the continuous variable speed control to manually adjust the grinding speed in the range from min. 3000 rpm to max. 3400 rpm.

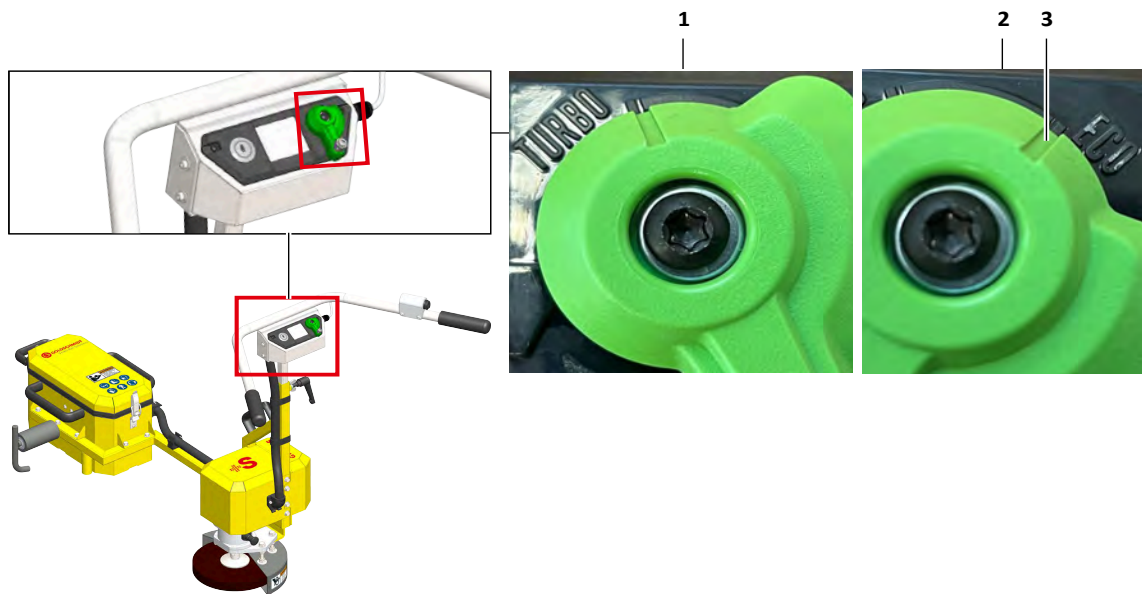


Fig. 2-5 control lever

The control lever can be moved to the following positions and in between:

Position	Description
1 "TURBO" position 	Moving the control lever to the "TURBO" position will set the highest possible speed for the grinding process (3400 rpm).
2 "ECO" position 	Moving the control lever to the "ECO" position will set the lowest possible speed for the grinding process (3000 rpm).
3 Position indicator	The position indicator on the control lever is meant to make it easier to adjust the speed as necessary.

The set grinding speed is also shown graphically on the LED display using a scale:

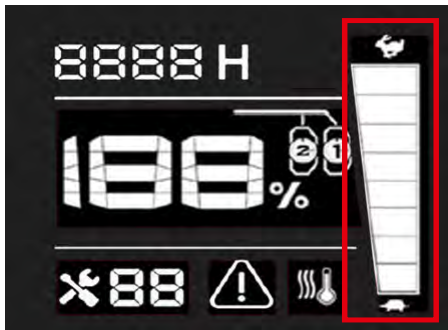


Fig. 2-6 LED display – speed

2.5.4 grinding drive ON/OFF (thumb switch)

The grinding drive ON/OFF (thumb switch) is found on the right side of the handlebar (Figure 2-7 on page 12) and is a rocker switch. When the motor has been set to operational readiness, you can switch on the grinding drive ON/OFF (thumb switch).

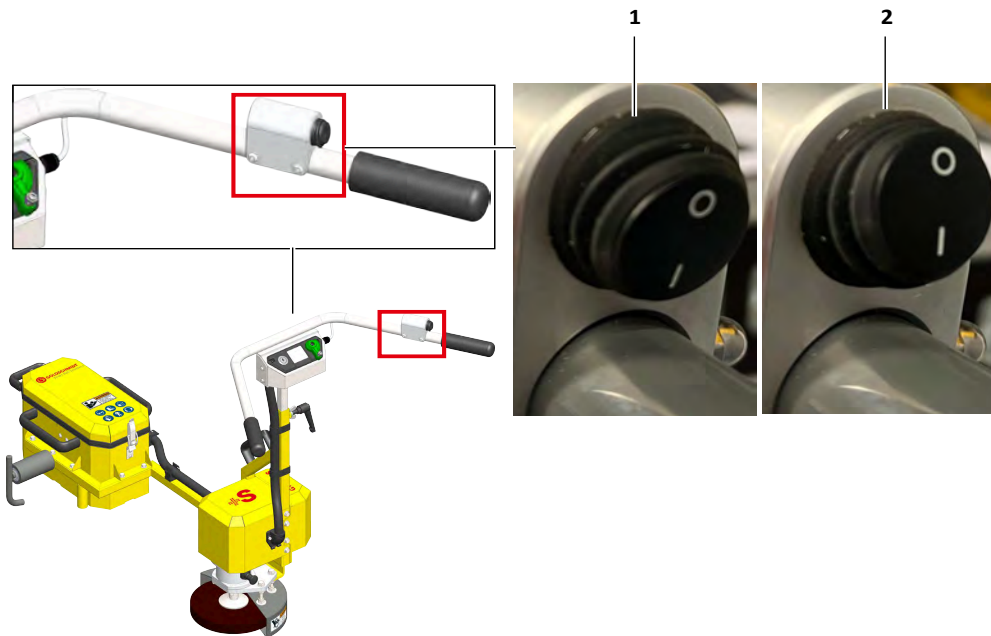


Fig. 2-7 grinding drive ON/OFF (thumb switch)

The grinding drive ON/OFF (thumb switch) has the following positions available:

Position	Description
1 "ON" position (I)	Switching the grinding drive ON/OFF (thumb switch) to the "ON" position will turn on the grinding drive for grinding work. Please note that the motor needs to be ready for operation before the grinding drive can be turned on!
2 "OFF" position (O)	Switching the grinding drive ON/OFF (thumb switch) to the "OFF" position will turn off the grinding drive.

2.6 Colors and safety labels

2.6.1 Coloring

Table 2-2 on page 13 lists the colors for the various battery-powered rail web grinding machine GW 110 +S components:

Tab. 2-2 Coloring GW 110 +S

Color name / RAL code	Components
Jet black (RAL 9005)	Handles, Locking pin grinding shaft
Traffic gray (RAL 7043)	Guard
Gray aluminum (RAL 9007)	Handlebar
Golden yellow (RAL 1004)	Frame, Housing, Battery compartment
Nickel-plated steel	Guide roller

2.6.2 Safety labels

NOTICE

If safety labels are damaged or go missing at any point in the machine's service life, the operating company must ensure that they are replaced properly. Make sure to check that the safety labels are in place and in good condition on a regular basis.

The mandatory action and warning labels shown in Figure 2-8 on page 14 can be found on the cover of the battery-powered rail web grinding machine GW 110 +S's battery compartment.

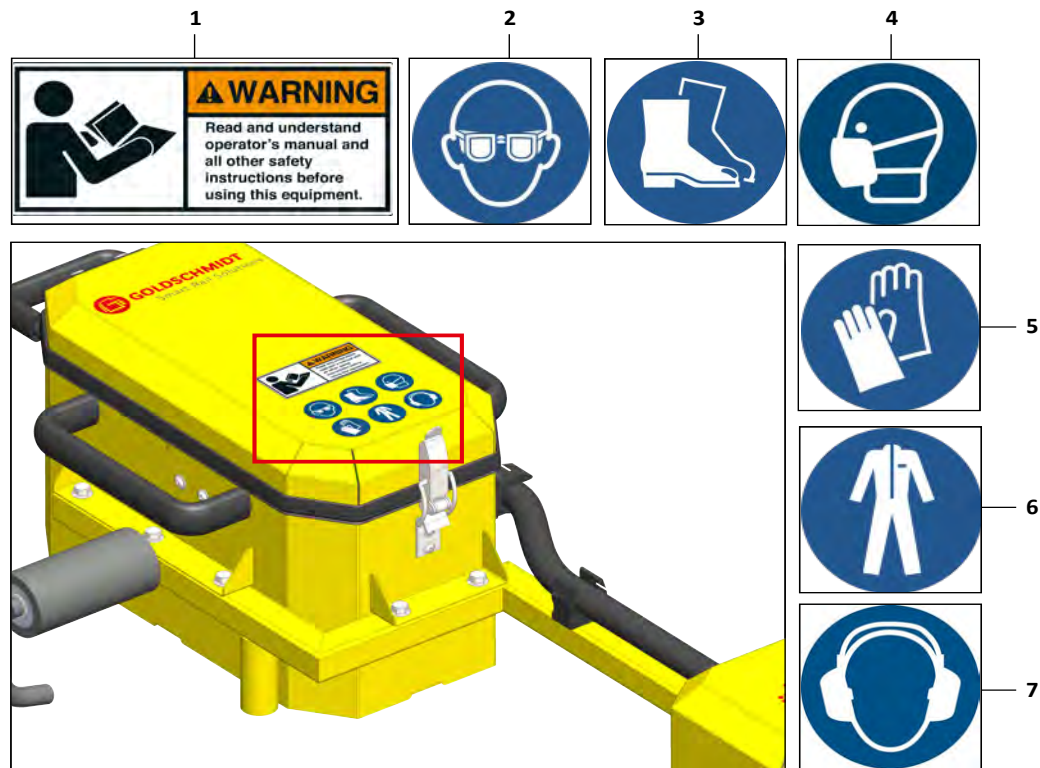


Fig. 2-8 Safety labels (battery compartment)

1	Warning: read, understand, and observe the operation manual	5	Mandatory action: wear work gloves
2	Mandatory action: wear safety eyewear	6	Mandatory action: wear protective clothing
3	Mandatory action: wear safety footwear	7	Mandatory action: wear hearing protection
4	Mandatory action: wear a mask		

The mandatory action and warning labels shown in Figure 2-9 on page 15 can be found on the battery-powered rail web grinding machine GW 110 +S's guard.

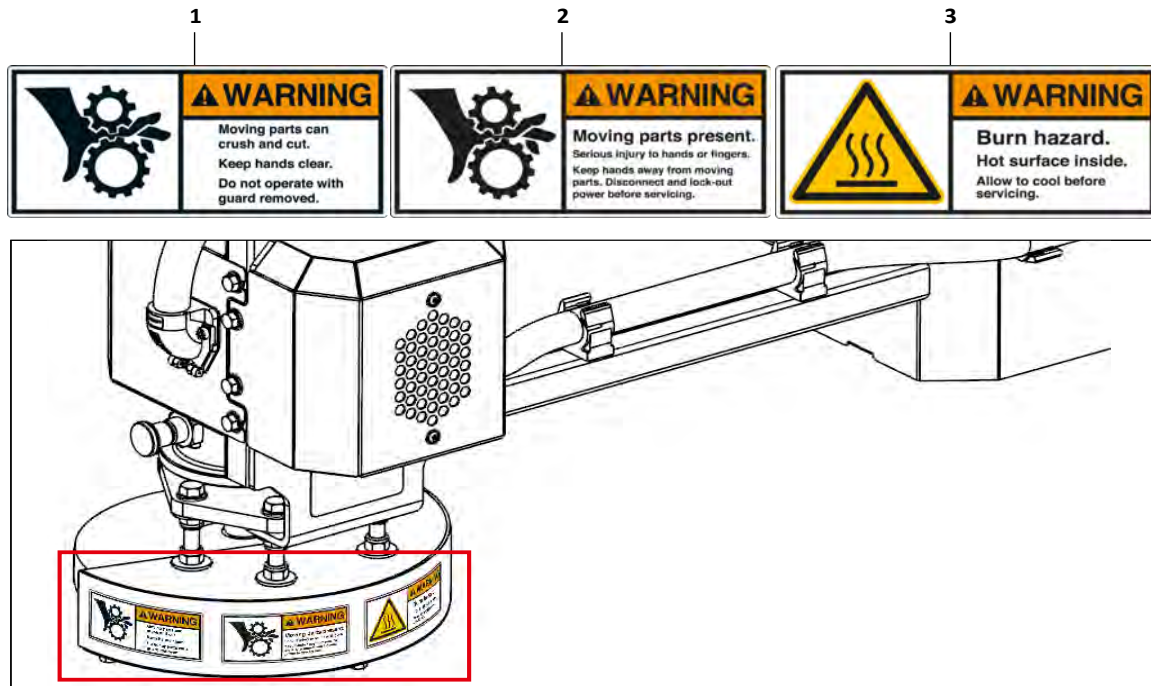


Fig. 2-9 Safety labels (guard)

- | | |
|---|-------------------------------|
| <p>1 Warning: crush and cut hazard posed by moving parts and never use without guard</p> <p>2 Warning: moving parts and remove battery before servicing</p> | <p>3 Warning: burn hazard</p> |
|---|-------------------------------|

2.7 Safety systems

The following guards and safety devices are installed on the machine in order to prevent personal injury and environmental and property damage (please refer to Figure 2-10 on page 16).

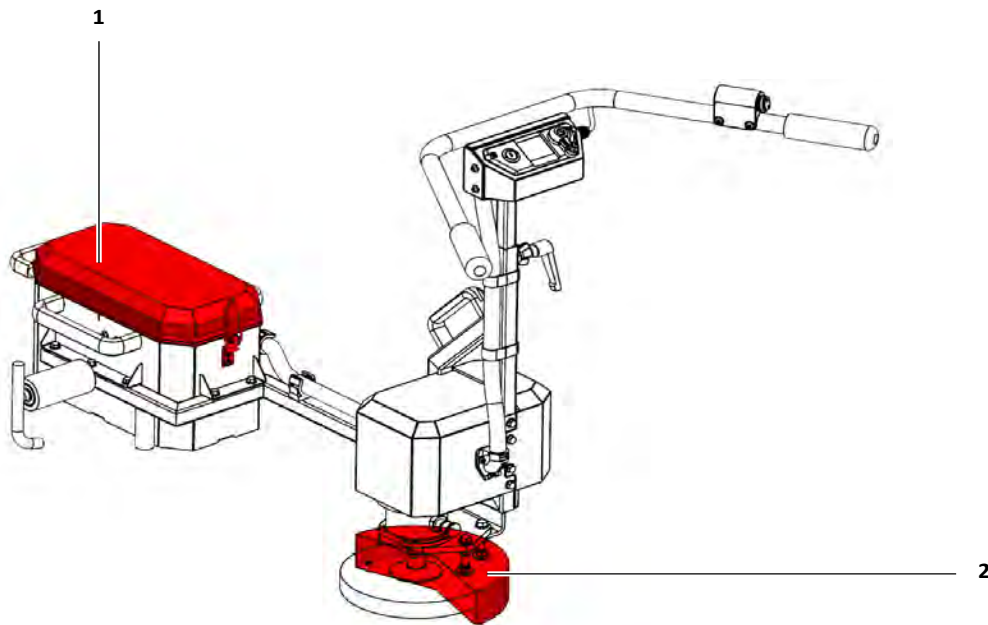


Fig. 2-10 Safety systems

Designation	Description
1 battery compartment cover (with toggle latch)	The battery compartment cover (with toggle latch) protects the EGO Power+ 56V-ARC-Lithium™ batteries from sparks, moisture, etc. The battery compartment cover (with toggle latch) must always be closed and latched in place during grinding.
2 guard	The guard shields operators from the grinding wheel. If the grinding wheel is damaged or fails during grinding, the guard will prevent wheel fragments from being hurled through the air as a result of the corresponding centrifugal force.

2.8 Fire Extinguisher

An operational CO₂ fire extinguisher must always be accessible in the immediate vicinity of the work area.

NOTICE

This fire extinguisher is not included and accordingly is the responsibility of the operating company.

2.9 What to do in case of emergency

If an emergency occurs, turn off the machine immediately and leave the danger zone as quickly as possible.

In the event of personal injury, provide first aid immediately.

In case of fire, take the required firefighting steps immediately.

2.10 Accessory devices

NOTICE

Further accessories can be found in Annex D - Accessories on page V.

2.10.1 rechargeable battery

NOTICE

2 EGO Power+ 56V-ARC-Lithium™-batteries are required for full power. If only 1 battery is inserted, the device will only operate at 60% power.

NOTICE

Observe the battery and charger operation manuals provided by EGO when using and charging the batteries!

The batteries are EGO Power+ 56V-ARC-Lithium™ rechargeable batteries (12 Ah).

Each battery features a charge status indicator. The various battery modes are described in Table 2-3 on page 17 below:

Tab. 2-3 Battery LED indicator modes

Modes		Description
Five LEDs light up green (solid light)		$80\% \leq \text{charge level} \leq 100\%$
Four LEDs light up green (solid light)		$60\% \leq \text{charge level} < 80\%$
Three LEDs light up green (solid light)		$40\% \leq \text{charge level} < 60\%$
Two LEDs light up green (solid light)		$20\% \leq \text{charge level} < 40\%$
One LED lights up green (solid light)		$10\% \leq \text{charge level} < 20\%$

Tab. 2-3 Battery LED indicator modes <continued>

Modes		Description
One LED flashes red		Charge level < 10%
Five LEDs flash red		Low voltage The battery is almost empty and needs to be charged.
Five LEDs light up red (solid light)		The battery has overheated and needs to cool down.
No light on any of the LEDs		The battery is off.

The control unit's LED display will show the batteries' charge status and the number of batteries that are inserted (please refer to Chapter Fig. 2-11 "LED display – battery charge status" on page 19).

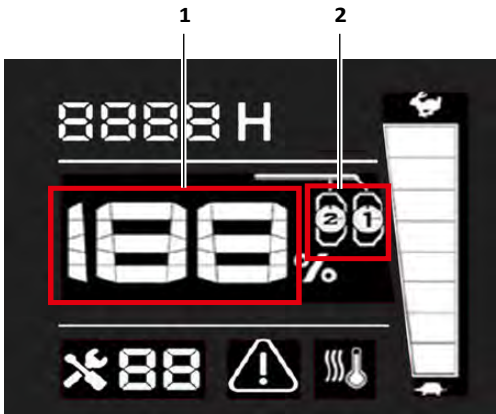


Fig. 2-11 LED display – battery charge status

Designation	Description
1 Charge status indicator	The Charge status indicator will show the current charge level of the battery or batteries as a percentage. If only one battery is inserted, the electric motor will not be able to work at more than 60% of its maximum power.
2 Battery quantity indicator	The battery quantity indicator will show the number of inserted batteries and the position. If both indicators light up, this means that there are two inserted batteries. If only one of the indicators lights up, this means that there is only one inserted battery.

2.10.2 Charger

NOTICE

Observe the battery and charger operation manuals provided by EGO when using and charging the batteries!

To charge the batteries correctly, make sure to use a "700 W RAPID+ Charger CH7000E" charger.

3 COMMISSIONING

Summary

Instructions that explain how to prepare the GW 110 +S for operation.

NOTICE

If you detect any issues, report them to your supervisor immediately. Do not put the machine back into operation until after these issues have been fixed and you receive approval for operating it again.

The following must be carried out before putting the machine into operation:

1. Check all included contents to make sure they are complete.
If any contents are missing, please contact the customer service team (please refer to Chapter 10 "Customer service" on page 67).
2. Visually inspect the GW 110 +S battery-powered rail web grinding machine and the batteries for damage (cracks, broken parts, deformation, etc.).
Damaged components and machine parts will need to be replaced. Please contact the customer service team (please refer to Chapter 10 "Customer service" on page 67).
3. Make sure that the batteries have been inserted correctly (please refer to Chapter 4.1 "Inserting the batteries" on page 24).
4. Check the batteries' charge status (please refer to table 2-3 in Chapter 2.10.1 "rechargeable battery" on page 17).
5. Make sure that the battery compartment cover (with toggle latch) is securely latched.
6. Check the rail web grinding machine for excess soiling.
Remove any excess soiling (please refer to Chapter 7.4 "Cleaning the GW 110 +S" on page 49).
7. Check that the guard is in place.



WARNING

RISK OF INJURY.

There is a risk of injury posed by parts/particles flying around during grinding.

- **Do not, under any circumstance, operate the rail web grinding machine if the guard is not in place.**
- **Make sure that the guard is installed properly.**
- **Wear all required personal protective equipment.**
- **Individuals not working with or on the machine must stay outside of the danger zone.**
- **Check every new grinding wheel for external damage and make sure to check its expiration date as well.**

8. Check the guard's condition.

Replace the guard if it is damaged and/or deformed (please refer to Chapter 7.7 "Changing the grinding wheel" on page 55).

9. Check all screw connections to make sure they are secure.

Retighten the screw connections if necessary (please refer to Chapter 7.8 "Checking the screw connections to make sure they are secure" on page 60).

10. Check the grinding shaft and the grinding wheel to make sure they are properly installed. The grinding shaft and the grinding wheel must be installed with zero backlash. Correct the seating if necessary (please refer to Chapter 7.7 "Changing the grinding wheel" on page 55).

3.1 Functional test



RISK OF INJURY.

There is a risk of serious injury if the operator touches the rotating grinding wheel or reaches between the rotating grinding wheel and the guard.

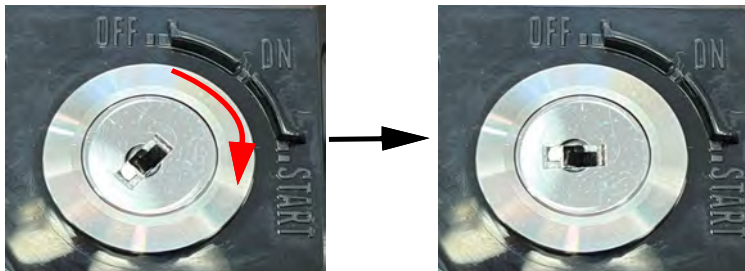
- **Keep your hands and legs away from the rotating grinding wheel.**
- **Do not, under any circumstance, operate the rail web grinding machine without the guard.**
- **Remove all batteries before replacing the grinding wheel or carrying out any maintenance work.**
- **Individuals not working with or on the machine must stay outside of the danger zone.**
- **Always wear the required protective equipment!**

Follow the steps below in order to carry out the functional test properly.

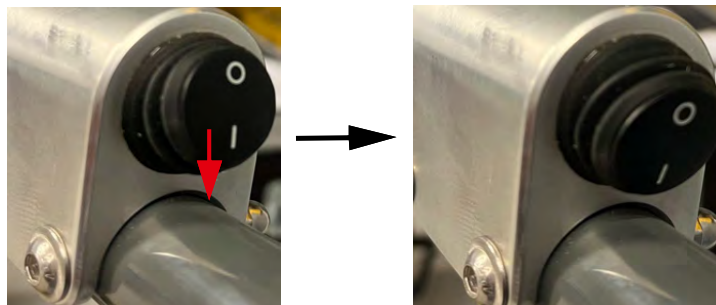
1. Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20).
2. Firmly hold the rail web grinding machine in place with the handlebar.
3. If necessary, adjust the handlebar's position (please refer to Chapter 4.2 "Adjusting the handlebar" on page 26).
4. Insert the key into the key switch on the left side of the control unit.
5. Turn the key 45° clockwise to the "ON" position to turn on the electronics.
The LED display will be turned on automatically.



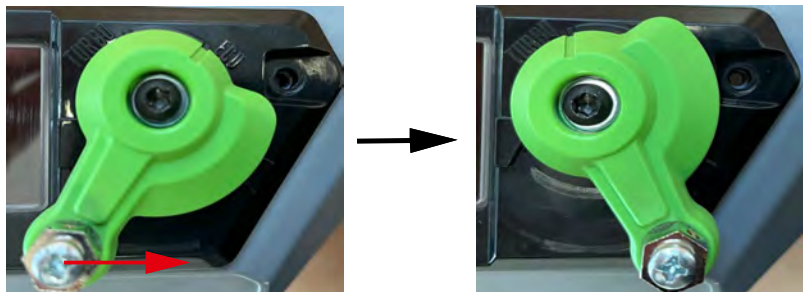
6. Turn the key another 45° clockwise to the "START" position and put the motor into operational readiness.



7. Firmly hold the rail web grinding machine in place with both hands on the handlebar.
8. Switch the grinding drive ON/OFF (thumb switch) rocker switch on the right side of the handlebar to the "ON" position (I) to turn on the grinding drive.
- The grinding wheel will start rotating.



9. Move the control lever to the "TURBO" position to set the machine to its highest speed.



10. Let the grinding wheel turn at full speed for a full minute. Check that the grinding wheel is running smoothly and does not wobble or produce abnormal vibrations.

The functional test is considered to be passed if the grinding wheel runs smoothly, does not wobble, and does not produce any abnormal vibrations.

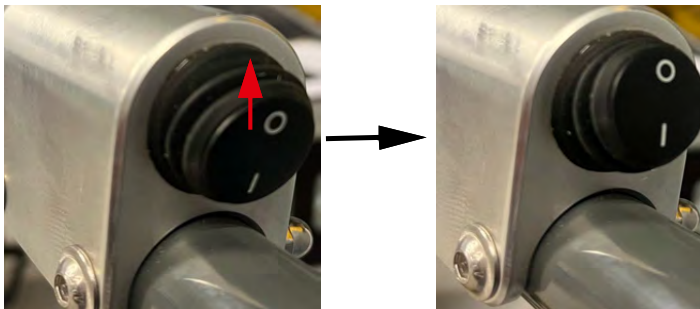
NOTICE

If there are any issues, stop the functional test and start troubleshooting (please refer to Chapter 7 "Maintenance and Care" on page 43).

You can resume operation after fixing the detected issues.

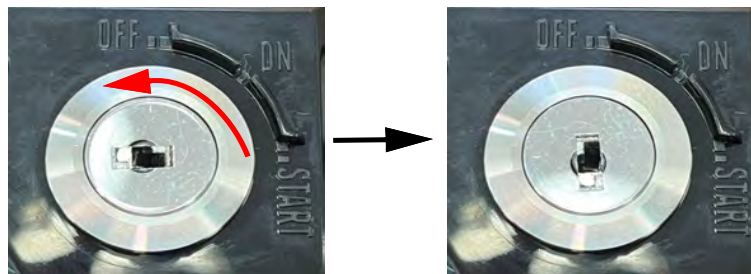
11. Switch the grinding drive ON/OFF (thumb switch) rocker switch on the right side of the handlebar to the "OFF" position (O) to turn off the grinding drive.

The grinding wheel will stop.



12. Turn the key counterclockwise to the "OFF" position to turn off the electronics and the motor.

The LED display will be turned off automatically.



4 OPERATION

Summary	Instructions used to explain the GW 110 +S's main functions.
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HEARING LOSS.

Noise levels during grinding may result in permanent hearing loss. Make sure to always wear hearing protection. Individuals who are not working with or on the grinding machine must stay at a minimum distance of 1.5 m. Agree on clear and effective hand signals for communication.

NOTICE

If you detect any issues, report them to your supervisor immediately. Do not put the machine back into operation until after these issues have been fixed and you receive approval for operating it again.

NOTICE

Wear personal protective equipment.

NOTICE

Do not place the battery-powered rail web grinding machine in water or hose it down.

4.1 Inserting the batteries



RISK OF INJURY.

There is a risk of injury due to fire and/or explosion. Damaged batteries and incorrectly handled batteries may behave in an unforeseeable manner, which can result in a fire or explosion and the associated risk of injury.

- Do not, under any circumstance, use any damaged or modified batteries!
- Properly dispose of all damaged batteries!
- Do not expose the batteries to fire or extreme temperatures!
- Follow all charging instructions and make sure to never charge the batteries outside of the temperature range specified in the manual provided by EGO (please refer to the EGO operation manual, Chapter 1.4 "Further applicable documents" on page 4).

NOTICE

Do not, under any circumstance, use damaged batteries.

NOTICE

2 EGO Power+ 56V-ARC-Lithium™-batteries are required for full power. If only 1 battery is inserted, the device will only operate at 60% power.

NOTICE

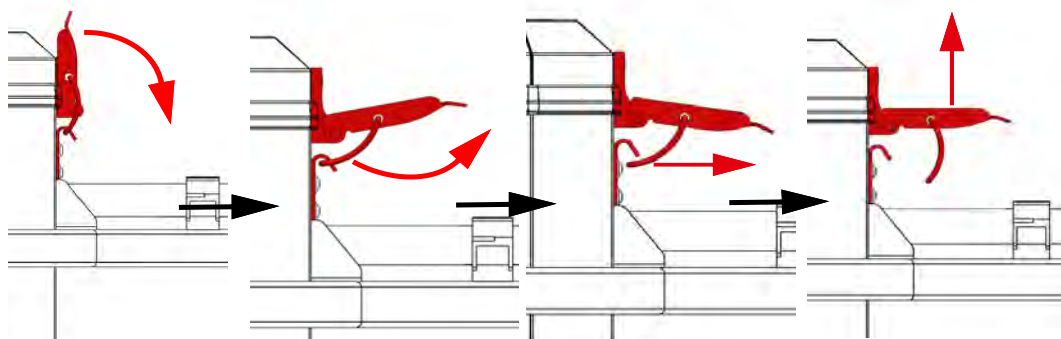
Observe the battery and charger operation manuals provided by EGO when using and charging the batteries!

NOTICE

Make sure to only use EGO Power+ 56V-ARC-Lithium™ batteries (two units) or other batteries approved by the manufacturer.

Follow the steps below to insert the batteries correctly:

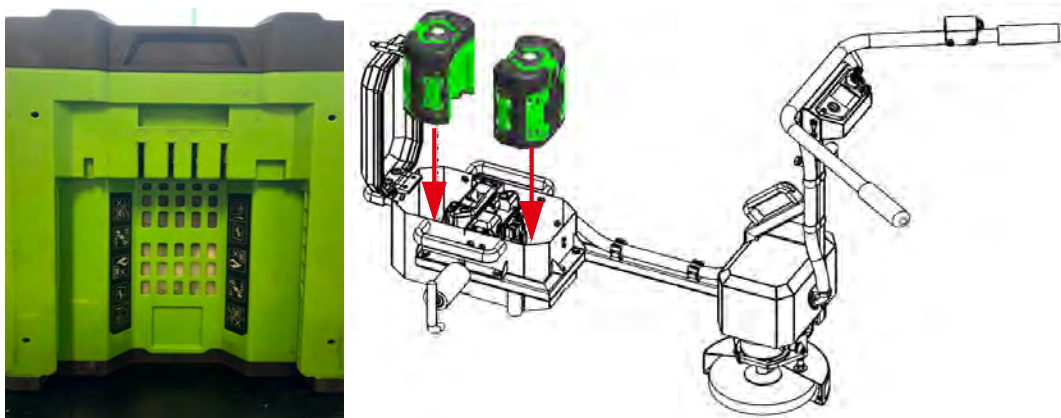
1. Open the toggle latch and then open the battery compartment cover (with toggle latch).



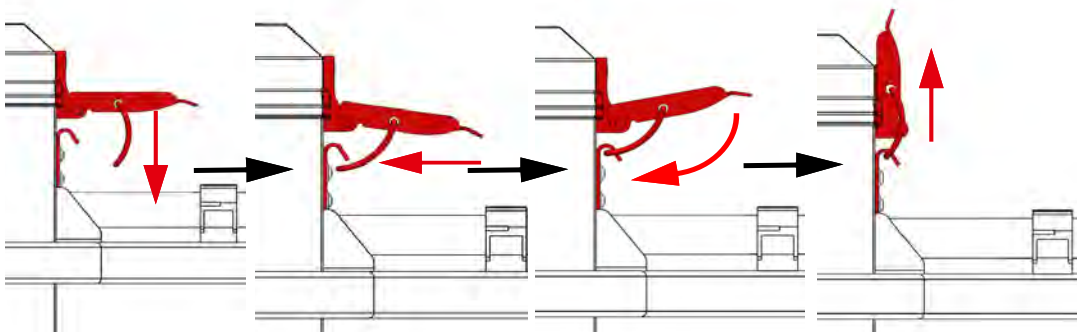
2. Align the battery ribs with the guide slots on the battery holder and slide the battery all the way into the battery holder.

When the battery has been inserted properly all the way, you will hear it click into place.

Repeat for the second battery.



3. Close the battery compartment cover (with toggle latch) and then close the toggle latch.



4.2 Adjusting the handlebar

NOTICE

Make sure not to pull on or damage the cables in the conduit leading to the motor.

NOTICE

The handlebar can be adjusted up and down in order to accommodate the various comfort zones of different operators. In addition, the handlebar can be turned 90° in order to adjust the leverage during grinding or change the operator's position.

Follow the steps below to adjust the handlebar to the height you want:

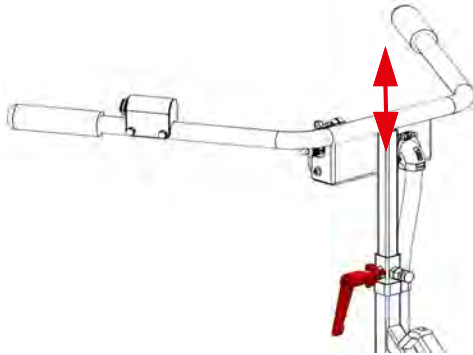
1. Turn the wing screw on the locking lever one turn counterclockwise in order to release the lever.



2. Turn the locking lever counterclockwise until the handlebar can be slid up and down in the tube.



3. If necessary, turn the handlebar 90°. To do this, pull the handlebar completely out of the tube, turn it 90°, and insert it back into the tube.
4. Adjust the handlebar's height as necessary and then hold it firmly in place. To bring the handlebar to a higher position, pull it up from the tube. To bring it to a lower position, slide it into the tube.



5. Turn the locking lever clockwise by hand until it is tight in order to secure the handlebar in place.



6. Turn the wing screw on the locking lever clockwise in order to secure the locking lever in place.



4.3 Grinding



HOT SURFACES.

Hot surfaces pose a burn hazard.

The surfaces of the grinding wheel, the grinding shaft, the guard, and/or the rail may be hot after grinding and result in burns or other irreversible injuries if touched.

- Make sure to always wear all necessary personal protective equipment (especially work gloves).
- Let the components cool down first before changing the grinding wheel or carrying out maintenance work.
- Let the rail cool down after welding (below 40° C / 104° F).



RISK OF INJURY.

There is a risk of serious injury if the operator touches the rotating grinding wheel or reaches between the rotating grinding wheel and the guard.

- Keep your hands and legs away from the rotating grinding wheel.
- Do not, under any circumstance, operate the rail web grinding machine without the guard.
- Always wear the required protective equipment!



CRUSH HAZARD.

There is a risk of injury due to crushing if the operator reaches between the guide roller, the guide hook, and the rail.

- Do not, under any circumstance, reach between the guide roller and the rail.
- Always wear the required protective equipment!

Follow the steps below in order to do grinding work correctly:

1. Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20).
2. If necessary, adjust the handlebar's position (please refer to Chapter 4.2 "Adjusting the handlebar" on page 26).
3. When setting the rail web grinding machine on the rail, make sure to position the machine in such a way that its frame is at a slight angle to the rail.

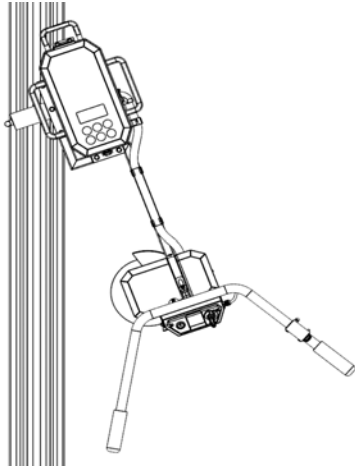


CRUSH HAZARD.

There is a crush hazard when setting the machine on a rail.

Do not, under any circumstance, reach between the rail and the GW 110 +S battery-powered rail web grinding machine.

To set down the machine, use the handles intended for that purpose.



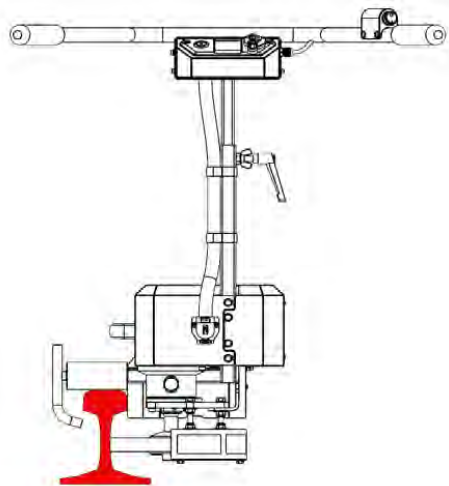
4. Place the rail web grinding machine on the rail in such a way that the guide roller's guide hook is underneath the rail head while the actual guide roller moves on top of the rail.

The grinding wheel must be at a short distance from the rail web and the ground.



CRUSH HAZARD.

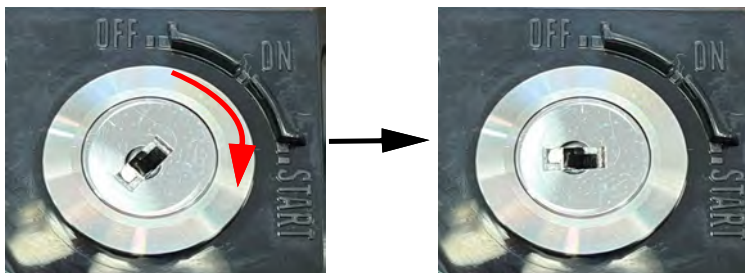
**There is a crush hazard when positioning the machine.
Do not reach between the guide roller and the rail.
Use the handlebar to position the machine.**



5. Firmly hold the rail web grinding machine in place with the handlebar.
6. Insert the key into the key switch on the left side of the control unit.
7. Turn the key 45° clockwise to the "ON" position to turn on the electronics.
The LED display will be turned on automatically.



8. Turn the key another 45° clockwise to the "START" position and put the motor into operational readiness.



9. Firmly hold the rail web grinding machine in place with both hands on the handlebar.
10. Switch the grinding drive ON/OFF (thumb switch) rocker switch on the right side of the handlebar to the "ON" position (I) to turn on the grinding drive.

The grinding wheel will start rotating.



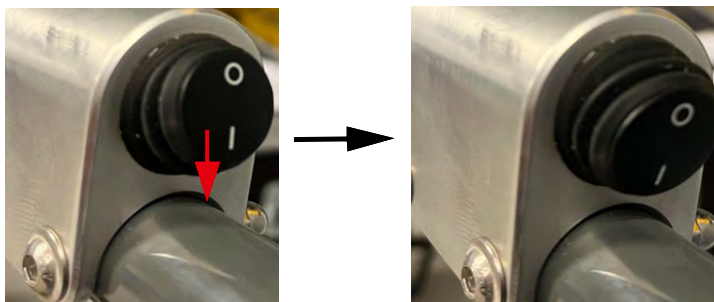
CAUTION

RISK OF INJURY.

There is a risk of injury due to abnormal vibrations.

If you notice any abnormal vibrations while working with the rail web grinding machine, stop operating the machine immediately.

- Start troubleshooting (please refer to Chapter 7 "Maintenance and Care" on page 43).
- Turn the rail web grinding machine off until the cause of the vibrations has been found and fixed.
- Check to make sure that the grinding wheel is properly mounted on the grinding shaft and adjust it if necessary (please refer to Chapter 7 "Maintenance and Care" on page 43).

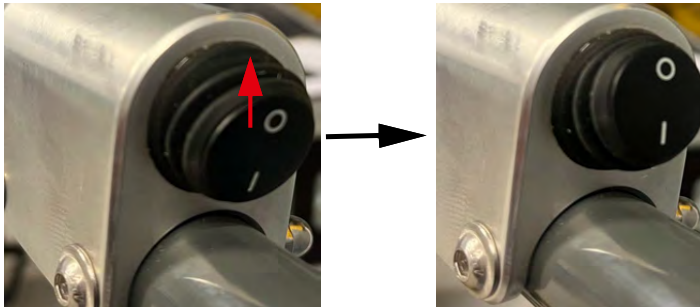


11. Move the GW 110 +S battery-powered rail web grinding machine as necessary to grind the weld.
12. Adjust the speed if necessary during grinding (please refer to Chapter 4.4 "Adjusting the speed" on page 32).
13. Switch the grinding drive ON/OFF (thumb switch) rocker switch on the right side of the handlebar to the "OFF" position (O) to turn off the grinding drive.

The grinding wheel will stop.

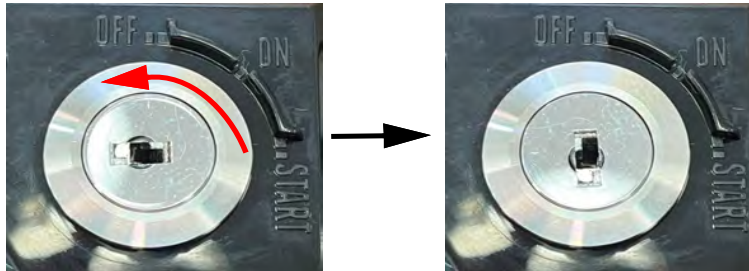
NOTICE

Make absolutely sure that the grinding wheel has stopped before removing the grinding machine from the rail.



14. Turn the key counterclockwise to the "OFF" position to turn off the electronics and the motor.

The LED display will be turned off automatically.



15. Remove the key from the key switch on the left side of the control unit.
16. Remove the GW 110 +S battery-powered rail web grinding machine from the rail.

CAUTION**CRUSH HAZARD.**

There is a crush hazard when removing the machine from the rail.

Do not, under any circumstance, reach between the rail and the GW 110 +S battery-powered rail web grinding machine.

To remove the machine from the rail, use the handles intended for that purpose.

**RISK OF INJURY.**

There is a risk of injury posed by the machine's weight. The rail web grinding machine weighs 23 kg / 51 lbs without batteries. There is a risk of injury when the machine is being transported.

- If there are any batteries in the compartment, two people must carry the rail web grinding machine.
- When carrying the machine, make sure to be properly balanced and get a good footing.
- Always carry the machine from the handles only.
- Always wear safety footwear.

4.4 Adjusting the speed

Follow the steps below to adjust the machine's speed correctly:

1. Move the control lever on the control unit to the position you want in order to adjust the speed.

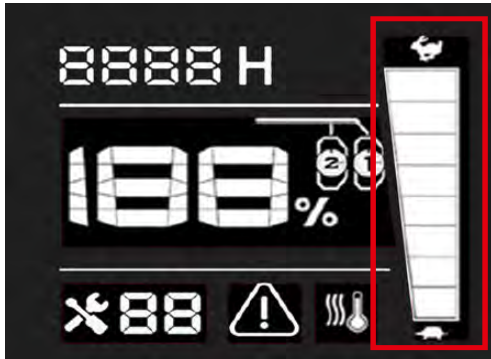
The position indicator shows the speed you have set.

Move the control lever on the control unit to the right to increase the speed. The "TURBO" position marks the fastest possible speed.

Move the control lever on the control unit to the left to decrease the speed. The "ECO" position marks the slowest possible speed.



The control unit's LED display will show the set speed.



4.5 Removing the batteries



WARNING

RISK OF INJURY.

There is a risk of injury due to fire and/or explosion.

Damaged batteries and incorrectly handled batteries may behave in an unforeseeable manner, which can result in a fire or explosion and the associated risk of injury.

- Do not, under any circumstance, use any damaged or modified batteries!
- Properly dispose of all damaged batteries!
- Do not expose the batteries to fire or extreme temperatures!
- Follow all charging instructions and make sure to never charge the batteries outside of the temperature range specified in the manual provided by EGO (please refer to the EGO operation manual, Chapter 1.4 "Further applicable documents" on page 4).

NOTICE

Do not, under any circumstance, use damaged batteries.

NOTICE

2 EGO Power+ 56V-ARC-Lithium™-batteries are required for full power. If only 1 battery is inserted, the device will only operate at 60% power.

NOTICE

Observe the battery and charger operation manuals provided by EGO when using and charging the batteries!

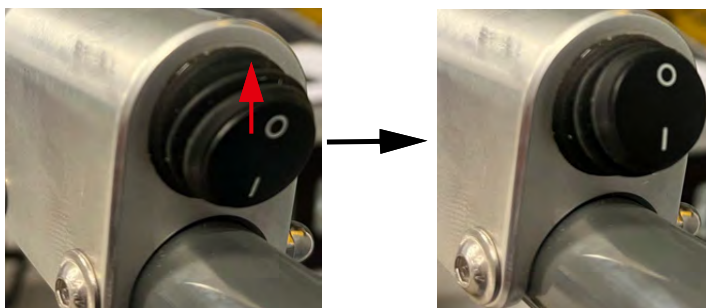
NOTICE

Make sure to only use EGO Power+ 56V-ARC-Lithium™ batteries (two units) or other batteries approved by the manufacturer.

Follow the steps below to remove the batteries correctly:

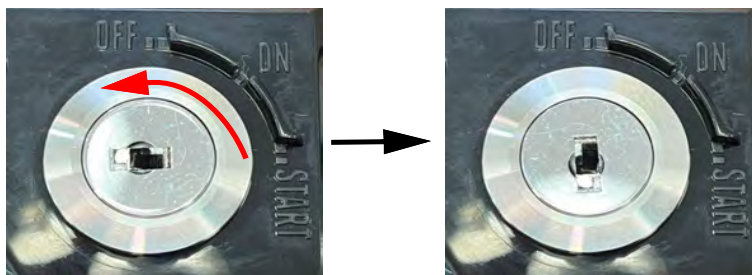
1. Switch the grinding drive ON/OFF (thumb switch) rocker switch on the right side of the handlebar to the "OFF" position (O) to turn off the grinding drive.

The grinding wheel will stop.

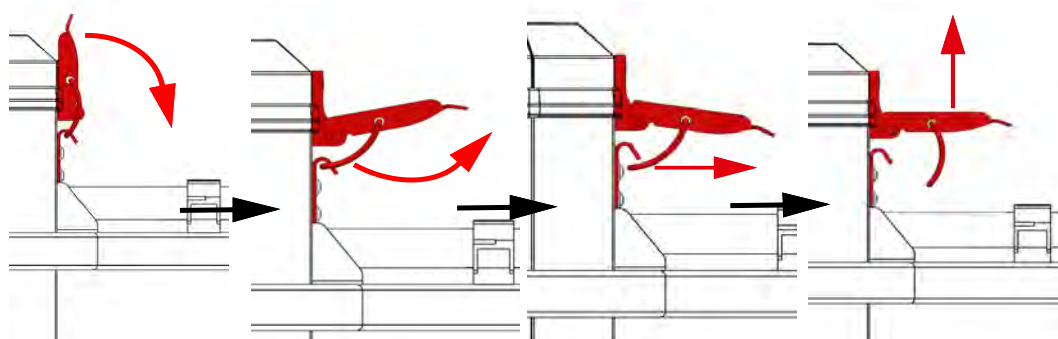


2. Turn the key counterclockwise to the "OFF" position to turn off the electronics and the motor.

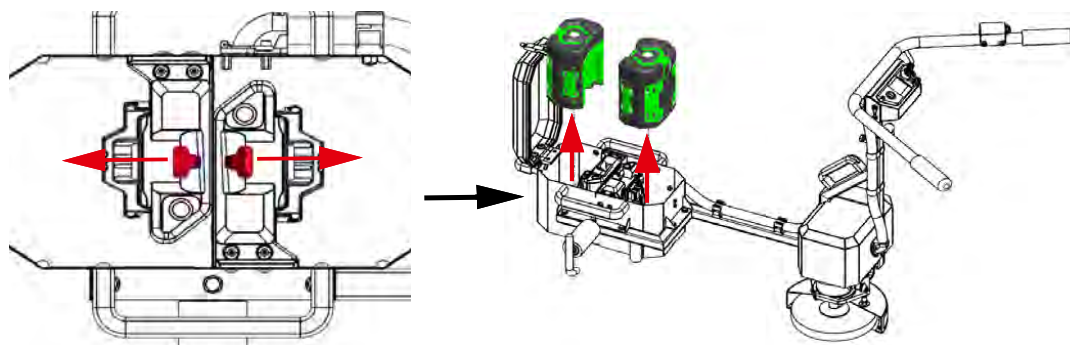
The LED display will be turned off automatically.



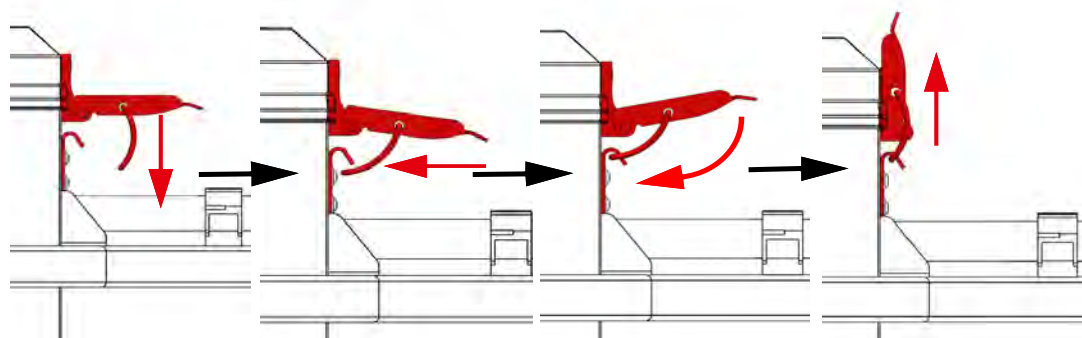
3. Open the toggle latch and then open the battery compartment cover (with toggle latch).



4. Press the actuator on the battery holder and pull the battery up and out of its holder. Repeat for the second battery.



5. Close the battery compartment cover (with toggle latch) and then close the toggle latch.



5 DECOMMISSIONING (SHUTDOWN)

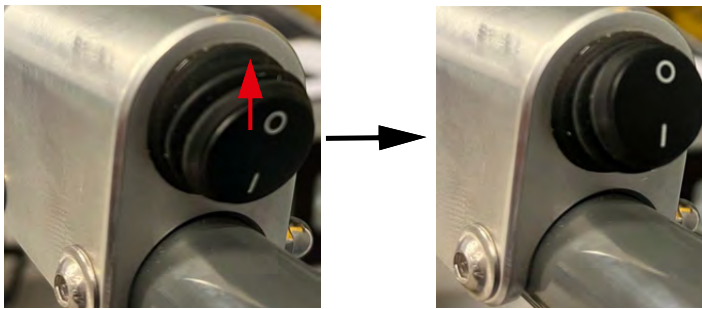
Summary

Instructions used to explain how to shut down the GW 110 +S as preparation for maintenance, transportation, or storage.

Follow the steps below in order to carry out the decommissioning properly.

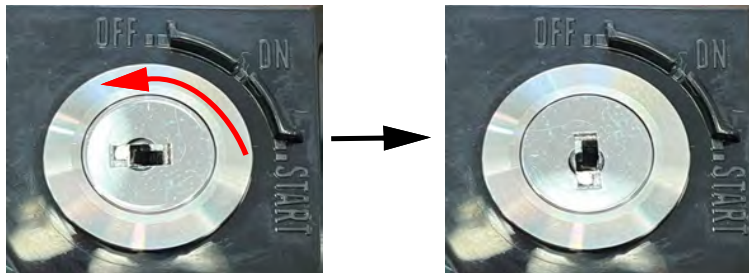
1. Firmly hold the rail web grinding machine in place with the handlebar.
2. Switch the grinding drive ON/OFF (thumb switch) rocker switch on the right side of the handlebar to the "OFF" position (O) to turn off the grinding drive.

The grinding wheel will stop.



3. Turn the key counterclockwise to the "OFF" position to turn off the electronics and the motor.

The LED display will be turned off automatically.



4. Remove the key from the key switch on the left side of the control unit.
5. Remove the batteries (please refer to Chapter 4.5 "Removing the batteries" on page 33).
6. Remove the GW 110 +S battery-powered rail web grinding machine from the rail.



CRUSH HAZARD.

There is a crush hazard when removing the machine from the rail.

Do not, under any circumstance, reach between the rail and the GW 110 +S battery-powered rail web grinding machine.

To remove the machine from the rail, use the handles intended for that purpose.

**RISK OF INJURY.**

There is a risk of injury posed by the machine's weight. The rail web grinding machine weighs 23 kg / 51 lbs without batteries. There is a risk of injury when the machine is being transported.

- If there are any batteries in the compartment, two people must carry the rail web grinding machine.
- When carrying the machine, make sure to be properly balanced and get a good footing.
- Always carry the machine from the handles only.
- Always wear safety footwear.

6 FAULT, CAUSE AND ELIMINATION

Summary

Identifying problems and fixing them.



RISK OF INJURY.

There is a risk of injury posed by repairs that are not carried out correctly.

Repairs to the rail web grinding machine must be carried out exclusively by Elektro-Thermit GmbH & Co. KG or specially trained personnel.

- Work on electrical system components must be carried out exclusively by qualified electricians.
- Parts and components must be replaced exclusively with identical spare parts. When replacing a component, make absolutely sure to observe all the component manufacturer's instructions and specifications.

NOTICE

All maintenance, servicing, and inspection work must be carried out exclusively by trained specialized personnel.

NOTICE

Wear the required personal protective equipment.

NOTICE

If necessary, contact the customer service team (please refer to Chapter 10 "Customer service" on page 67) in order to get information for maintenance steps or repairs.

The following Table 6-1 on page 38 lists potential problems, their cause, and how to fix them.

FCE 6-1 Troubleshooting

Defect	Causes	Elimination
One battery LED flashes red 	Charge level < 10%	1. Charge the battery with a compatible charger.
Five battery LEDs flash red 	The battery is almost empty and needs to be charged immediately.	

FCE 6-1 Troubleshooting <continued>

Defect	Causes	Elimination
Five battery LEDs light up red (solid light) 	Battery overheating	1. Let the battery cool down.
Wobbling, abnormal vibrations, and/or noise	Problems with the grinding drive's concentricity	1. Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36). 2. Check the grinding wheel for damage. Damaged grinding wheels must be replaced. 3. Replace the grinding wheel if damaged (please refer to Chapter 7.7 "Changing the grinding wheel" on page 55).

FCE 6-1 Troubleshooting <continued>

Defect	Causes	Elimination
The rail web grinding machine will not turn on	No batteries have been inserted	1. Check to make sure that you have inserted the batteries. 2. Insert the batteries (please refer to Chapter 4.1 "Inserting the batteries" on page 24). 3. Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20).
	Batteries not inserted correctly	1. Check to make sure that the battery or batteries have been inserted all the way. 2. Insert the battery or batteries properly. Align the battery ribs with the connector guide slots and slide the battery all the way into the battery holder. When the battery has been inserted properly all the way, you will hear it click into place. Repeat for the second battery. 3. Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20).
	The battery is empty	1. Charge the battery with a compatible charger (please refer to the operation manual provided by EGO).

6.1 Error codes on the LED display

Table 6-2 on page 41 below lists various error codes that the LED display can show, as well as their cause and how to fix them.

FCE 6-2 Error codes

Fault Code	Causes	Elimination
	Blocked rotor protection	1. Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36). 2. Check for blockages close to the area where you are working. Remove any blockages. 3. Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20). If the error code is shown again, please contact the customer service team (please refer to Chapter 10 "Customer service" on page 67).
	Low voltage	1. Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36). 2. Remove the battery/batteries (please refer to Chapter 4.5 "Removing the batteries" on page 33). 3. Charge the battery/batteries with a compatible charger (please refer to the operation manual provided by EGO). 4. Once the battery is fully charged, insert it once again (please refer to Chapter 4.1 "Inserting the batteries" on page 24).
	Overheated battery	1. Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36). 2. Check the air filter for impurities and clean them out if necessary (please refer to Chapter 7.5 "Cleaning the air filter" on page 50). 3. Let the battery cool down.

FCE 6-2 Error codes <continued>

Fault Code	Causes	Elimination
	Overheated drive unit	1. Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36). 2. Let the drive unit cool down. 3. Reduce the work load.
	Main board overcurrent protection	1. Reduce the work load.
	Communication error	1. Please contact the customer service team (please refer to Chapter 10 "Customer service" on page 67).

7 MAINTENANCE AND CARE

Summary

Overview of maintenance and repair tasks and the materials required for them, as well as instructions on how to carry them out.



RISK OF INJURY.

There is a risk of injury

Operating and maintenance personnel must have the required qualifications and be able to carry out the respective tasks reliably.

- The manager in question must define the corresponding personnel's responsibilities and supervision in detail.
- Everyone carrying out work on the machine must have received detailed briefing before that. This briefing must be documented in writing.
- The operations manager in question must make sure that all personnel has fully understood the contents of the operation and maintenance manuals.



RISK OF INJURY.

Improperly carrying out maintenance, as well as failure to perform maintenance in a timely manner, poses a risk of injury to operators and will result in damage to the rail web grinding machine.

- Remove all batteries before carrying out any maintenance work.
- The operating company must determine appropriate maintenance intervals as part of its risk assessment.
- Observe the manufacturer's maintenance intervals and instructions, as well as all applicable guidelines.
- Parts and components must be replaced exclusively with identical spare parts. When replacing a component, make absolutely sure to observe all the component manufacturer's instructions and specifications.



RISK OF INJURY.

There is a risk of injury posed by repairs that are not carried out correctly.

Repairs to the rail web grinding machine must be carried out exclusively by Elektro-Thermit GmbH & Co. KG or specially trained personnel.

- Work on electrical system components must be carried out exclusively by qualified electricians.
- Parts and components must be replaced exclusively with identical spare parts. When replacing a component, make absolutely sure to observe all the component manufacturer's instructions and specifications.

**RISK OF INJURY.**

There is a risk of serious injury if the operator touches the rotating grinding wheel or reaches between the rotating grinding wheel and the guard.

- Keep your hands and legs away from the rotating grinding wheel.
- Do not, under any circumstance, operate the rail web grinding machine without the guard.
- Remove all batteries before replacing the grinding wheel or carrying out any maintenance work.
- Individuals not working with or on the machine must stay outside of the danger zone.
- Always wear the required protective equipment!

**RISK OF INJURY.**

Putting the machine back into operation intentionally and/or accidentally may result in injury.

Make sure that the battery-powered rail web grinding machine GW 110 +S cannot be put back into operation intentionally or accidentally during maintenance and repair work by removing the batteries.



Environmentally hazardous substances must be properly disposed of in compliance with all applicable requirements and regulations.

Make sure to observe the manufacturer's data sheets and safety data sheets.

Comply with the disposal regulations that apply in the relevant U.S. state!

For more detailed information, please refer to Chapter 9 "Disposal" on page 66.

NOTICE

All maintenance, servicing, and inspection work must be carried out exclusively by trained specialized personnel (please refer to Chapter 1.3 "Requirements for operators" on page 1).

NOTICE

Wear the required personal protective equipment (please refer to Chapter 1.3.3 "Personal protection equipment" on page 3).

NOTICE

Damage, unusual noises, overheating, and/or vibrations are all things you should be on the lookout for.

NOTICE

Proper and timely maintenance will lengthen the machine's service life, ensure availability, and help prevent unwanted downtimes. The recommended maintenance intervals must be observed.

NOTICE

The components in the rail web grinding machine are subject to various maintenance intervals that depend on how the machine is used. These maintenance intervals must be determined by the company operating the machine as part of the corresponding hazard and risk assessments. Observe the requirements in all applicable guidelines.

NOTICE

The operating company must document all maintenance.

NOTICE

Use genuine spare parts and suitable tools exclusively.

7.1 Maintenance schedule

The maintenance schedule shows the interval at which maintenance tasks must be carried out while taking into account specific maintenance steps (please refer to Table 7-1 on page 46).

Tab. 7-1 Maintenance schedule

interval Maintenance task	Every time before putting the machine into operation	Daily / after the end of each shift	Every 80 operating hours	Every 100 operating hours	Annually	As necessary
Visual inspection of the GW 110 +S	X	X				X
Visual inspection and condition check safety labels and rating plate				X		X
Cleaning the GW 110 +S		X				X
Cleaning the air filter		X				X
Changing the air filter			X			X
Changing the grinding wheel						X
Checking the screw connections to make sure they are secure			X			X

7.2 Visual inspection of the GW 110 +S

Ambient conditions

No special ambient conditions need to be observed.

Personnel

Specialized personnel

Tools and materials

-

Maintenance 7-1 Visual inspection

Maintenance steps	Tools / materials
1. Switch off the device 1- 001 Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36).	
2. Visual inspection of general condition 2- 001 Carry out a visual inspection checking for damage, cracks, broken parts, and dents. Damaged components must not be put into operation and must be replaced. Please contact the customer service team (please refer to Chapter 10 "Customer service" on page 67). 2- 002 Carry out a visual inspection of the grinding wheel. Damaged and worn out grinding wheels must not be put into operation and must be replaced. Please refer to Chapter 7.7 "Changing the grinding wheel" on page 55). 2- 003 Check the grinding wheel's expiration date. Expired grinding wheels must not be put into operation and must be replaced. Please refer to Chapter 7.7 "Changing the grinding wheel" on page 55). 2- 004 Check the guard for damage and wear. Make sure that the cover plate is fastened hand-tight and keep it in good condition. Damaged guards must not be put into operation, and damaged or missing guards must be replaced. Please contact the customer service team (please refer to Chapter 10 "Customer service" on page 67). 2- 005 Check whether the corrugated hoses are in their corresponding holders and fittings. 2- 006 Check the corrugated hoses for damage and wear.	

Maintenance 7-1 Visual inspection <continued>

Maintenance steps	Tools / materials
Damaged corrugated hoses must not be put into operation, and damaged or missing corrugated hoses must be replaced. Please contact the customer service team (please refer to Chapter 10 "Customer service" on page 67).	
3. Switch on the device 3- 001 Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20).	

7.3 Visual inspection and condition check safety labels and rating plate

Ambient conditions
No special ambient conditions need to be observed.

Personnel
Specialized personnel

Tools and materials
Rating plate Safety labels as needed

Maintenance 7-2 Visual inspection and condition check of safety labels and rating plate

Maintenance steps	Tools / materials
1. Switch off the device 1- 001 Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36).	
2. Visual inspection and condition check 2- 001 Check that all safety labels are present and legible. Missing and illegible safety labels must be replaced. For more detailed information, please refer to Chapter 10 "Customer service" on page 67. 2- 002 Check that the rating plate is present and legible.	Safety labels

Maintenance 7-2 Visual inspection and condition check of safety labels and rating plate <continued>

Maintenance steps	Tools / materials
If the rating plate is missing or illegible, it must be replaced. For more detailed information, please refer to Chapter 10 "Customer service" on page 67.	Rating plate
3. Switch on the device 3- 001 Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20).	

7.4 Cleaning the GW 110 +S**RISK OF INJURY.**

There is a risk of metal swarf causing eye injuries when removing impurities with compressed air.

Make sure to wear safety eyewear and protective clothing during cleaning work.

NOTICE

The machine must be cleaned at the end of each shift every time it is used.

NOTICE

Do not place the battery-powered rail web grinding machine in water or hose it down.

Ambient conditions

No special ambient conditions need to be observed.

Personnel

Specialized personnel

Tools and materials**Quantity**

Cleaning cloth (lint-free)

1

Blow gun

1

Maintenance 7-3 Cleaning

Maintenance steps	Tools / materials
1. Turn off the device	-

Maintenance 7-3 Cleaning <continued>

Maintenance steps	Tools / materials
1- 001 Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36).	
2. Clean 2- 001 Remove grinding dust with a blow gun at a distance of 30 cm every time after you use the machine. 2- 002 Remove excess soiling with an appropriate cleaning cloth.	Blow gun Cleansing tissue
 Observe the following when cleaning the machine: • Do not, under any circumstance, let water get on or in the motor. • Do not, under any circumstance, use combustible and/or highly flammable cleaning agents. • Make sure that there are no paper residues and/or cleaning cloths left on the motor. • Do not hold the blow gun pointing at the fan from outside, as doing so will blow impurities into the system.	
3. Switch on the device 3- 001 Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20).	

7.5 Cleaning the air filter

Ambient conditions
No special ambient conditions need to be observed.

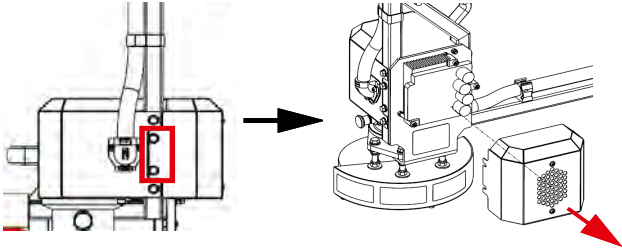
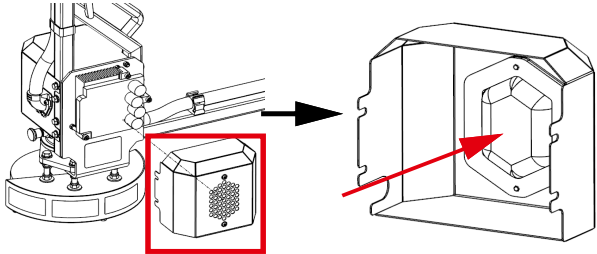
Personnel
Specialized personnel

Tools and materials	Quantity
10 mm wrench	1
Blow gun	1

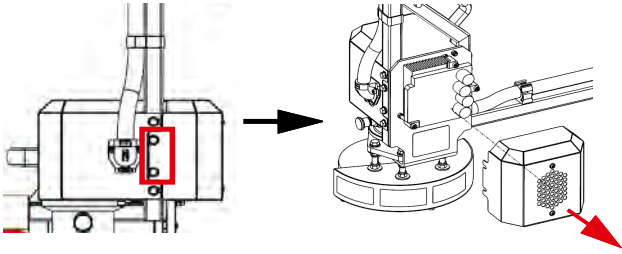
Maintenance 7-4 Cleaning the air filter

Maintenance steps	Tools / materials
1. Turn off the device	-

Maintenance 7-4 Cleaning the air filter <continued>

Maintenance steps	Tools / materials
1- 001 Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36).	
2. Remove the cover 2- 001 Use a 10 mm wrench to loosen the M6 hex bolts by turning them counterclockwise (3 turns). There are two M6 hex bolts on the left side and two on the right side. 2- 002 Remove the cover and set it aside. 	10 mm wrench
3. Clean 3- 001 Carefully clean the filter with a blow gun. Hold the blow gun at a distance of 30 cm from the cover. Blow the compressed air from the inside of the cover outwards. 	Blow gun
4. Install the cover	

Maintenance 7-4 Cleaning the air filter <continued>

Maintenance steps	Tools / materials
4- 001 Set the cover on the M6 hex bolts. 4- 002 Use a 10 mm wrench to tighten the M6 hex bolts hand-tight by turning them clockwise (3 turns). There are two M6 hex bolts on the left side and two on the right side. 	Shroud 10 mm wrench
5. Turn on the device 5- 001 Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20).	-

7.6 Changing the air filter

Ambient conditions
No special ambient conditions need to be observed.

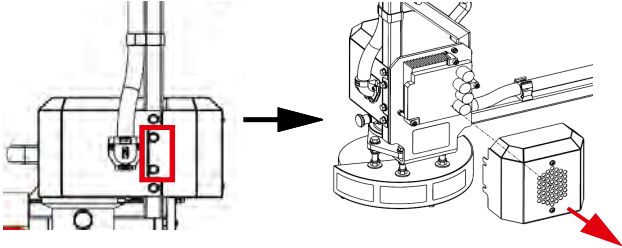
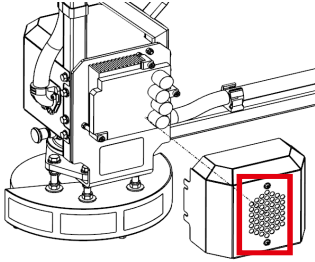
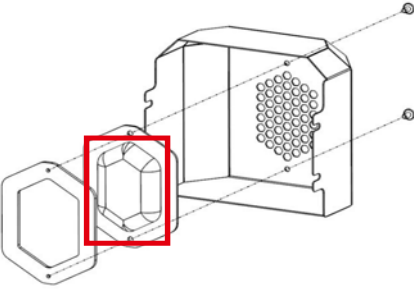
Personnel
Specialized personnel

Tools and materials	Quantity
10 mm wrench	1
2 mm hex wrench	1
Air filter (please refer to Annex D - Accessories on page V)	1

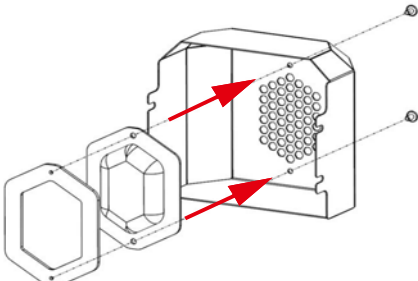
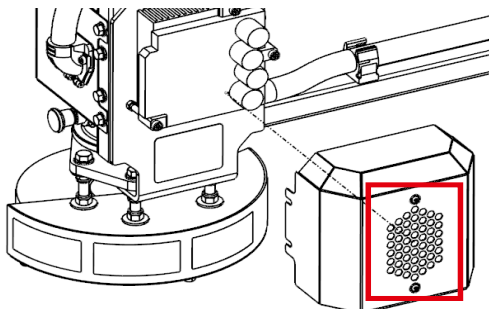
Maintenance 7-5 Changing the air filter

Maintenance steps	Tools / materials
1. Turn off the device 1- 001 Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36).	-

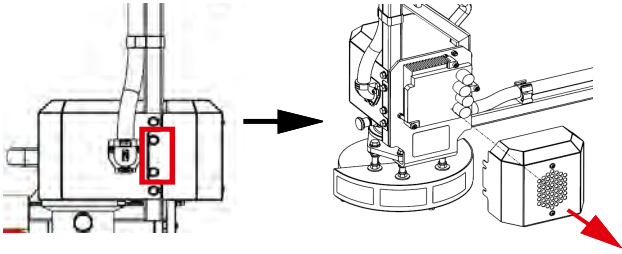
Maintenance 7-5 Changing the air filter <continued>

Maintenance steps	Tools / materials
2. Remove the cover 2- 001 Use a 10 mm wrench to loosen the M4 hex bolts by turning them counterclockwise (3 turns). There are two M6 hex bolts on the left side and two on the right side. 2- 002 Remove the cover. 	10 mm wrench
3. Change the filter 3- 001 Use a 2 mm hex wrench to unscrew the (two) M4 hexagon socket screws on the cover by turning them counterclockwise. 3- 002 Remove the (two) M4 hexagon socket screws and store them in a safe place.  3- 003 Remove the old air filter from the bracket. Properly dispose of the old air filter (please refer to Chapter 9 "Disposal" on page 66). 	2 mm hex wrench

Maintenance 7-5 Changing the air filter <continued>

Maintenance steps	Tools / materials
3- 004 Take the new air filter out of its packaging. Properly dispose of the packaging for the new air filter (please refer to Chapter 9 "Disposal" on page 66. 3- 005 Insert the new air filter into the bracket. 3- 006 Press the bracket against the inside of the cover and hold it in place. The bracket's holes must be aligned with the cover's holes. 	Air filter
3- 007 Insert the upper M4 hexagon socket screw into the hole and use a 2 mm hex wrench to turn it clockwise until it is hand-tight. 3- 008 Insert the lower M4 hexagon socket into the hole and use a 2 mm hex wrench to turn it clockwise until it is hand-tight 	2 mm hex wrench M4 hexagon socket screws (two)
4. Install the cover	

Maintenance 7-5 Changing the air filter <continued>

Maintenance steps	Tools / materials
4- 001 Set the cover on the M6 hex bolts. 4- 002 Use a 10 mm wrench to tighten the M6 hex bolts hand-tight by turning them clockwise (3 turns). There are two M6 hex bolts on the left side and two on the right side. 	Shroud 10 mm wrench
5. Turn on the device 5- 001 Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20).	-

7.7 Changing the grinding wheel

**HOT SURFACES.**

Hot surfaces pose a burn hazard.

The surfaces of the grinding wheel, the grinding shaft, the guard, and/or the rail may be hot after grinding and result in burns or other irreversible injuries if touched.

- Make sure to always wear all necessary personal protective equipment (especially work gloves).
- Let the components cool down first before changing the grinding wheel or carrying out maintenance work.
- Let the rail cool down after welding (below 40° C / 104° F).

NOTICE

Before use, check the grinding wheel for damage and make sure that it has not expired yet.

Do not, under any circumstance, use damaged or expired grinding wheels.

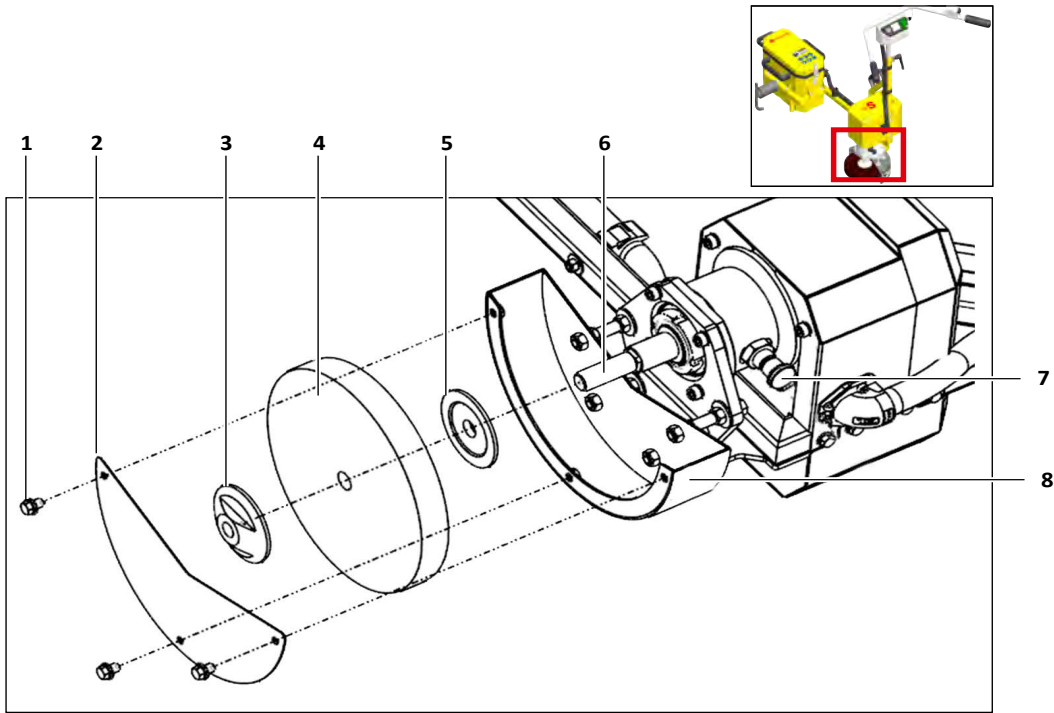


Fig. 7-1 Changing the grinding wheel

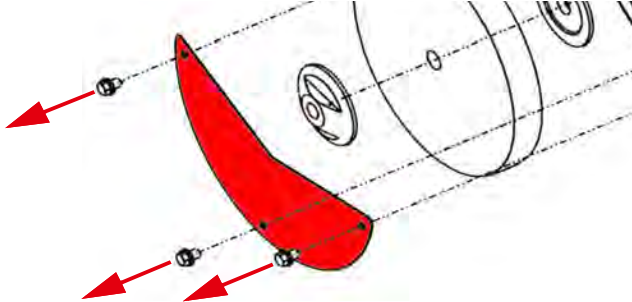
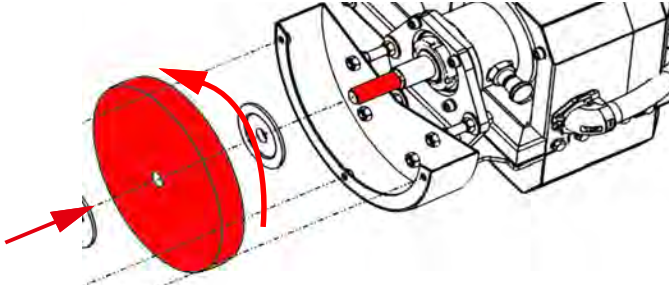
1	M6 hex bolts (three)	4	Grinding wheel	7	Locking pin
2	Cover plate	5	Top flange nut	8	guard
3	Lower flange nut	6	Grinding shaft		

Ambient conditions
No special ambient conditions need to be observed.

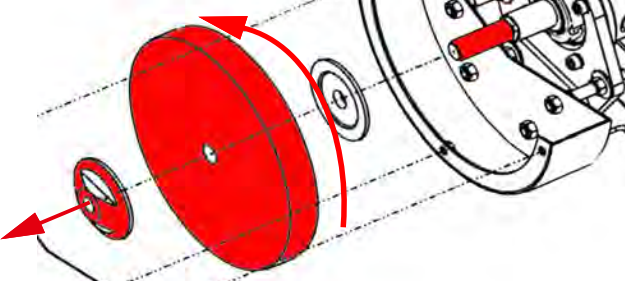
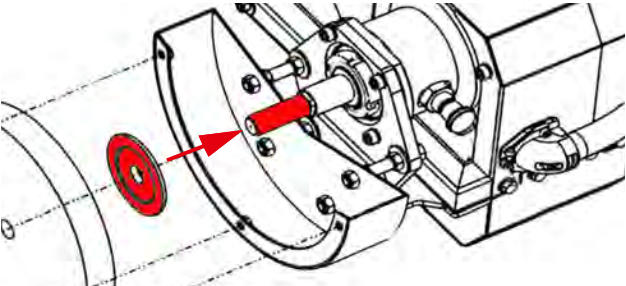
Personnel
Specialized personnel

Tools and materials	Quantity
10 mm wrench	1
30 mm wrench	1
Grinding wheel:	1
• Diameter: 8" (20.32 cm)	
• Thickness: 1" (2.54 cm)	
• Arbor hole: 5/8" (1.58 cm)	
• In addition, the grinding wheel must be suitable for use with speeds of up to 3600 revolutions per minute.	

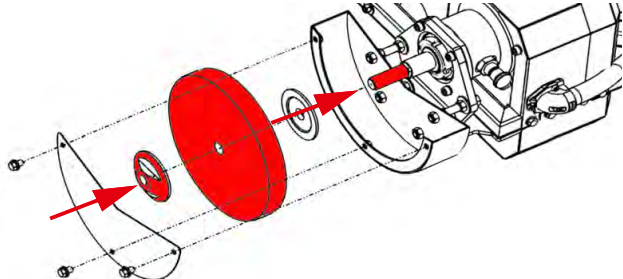
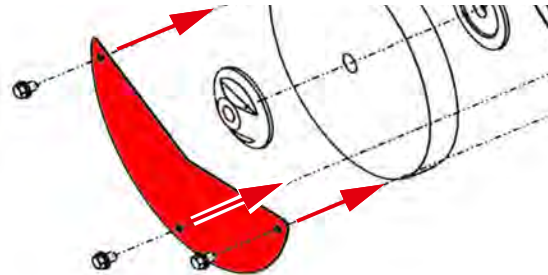
Maintenance 7-6 Changing the grinding wheel

Maintenance steps	Tools / materials
1. Turn off the device 1- 001 Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36).	-
2. Changing the grinding wheel 2- 001 Use a 10 mm wrench to unscrew the (three) M6 hex bolts on the cover plate by turning them counter-clockwise. Remove the (three) M6 hex bolts and store them in a safe place. 2- 002 Remove the spark guard's cover plate.  2- 003 Push the locking pin in and turn the grinding wheel counterclockwise until the locking pin locks into place. 	10 mm wrench

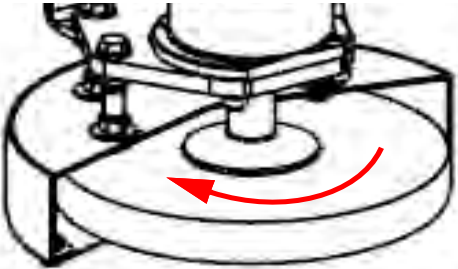
Maintenance 7-6 Changing the grinding wheel <continued>

Maintenance steps	Tools / materials
2- 004 Keep holding the locking pin in place and turn the grinding wheel counterclockwise with a 30 mm wrench until the lower flange nut comes loose. 2- 005 Remove the lower flange nut and the old grinding wheel. Check to make sure that the blotter has come loose together with the grinding wheel and is not stuck to the inside of the top flange nut. If it is stuck there, remove the blotter from the inside of the top flange nut.  2- 006 Check to make sure that the top flange nut is properly seated on the grinding shaft. If it is not properly seated, adjust it so that it is. The square on the grinding shaft must slide into the square at the back of the top flange nut. 	30 mm wrench

Maintenance 7-6 Changing the grinding wheel <continued>

Maintenance steps	Tools / materials
2- 007 Slide the new grinding wheel onto the grinding shaft and secure the lower flange nut by turning it clockwise with a 30 mm wrench. Use new blotters between the grinding wheel and the flanges. Make sure that the lower flange nut is bearing against the grinding wheel across its entire surface. The blotters are on the grinding wheel itself, meaning that they are supplied together with it. These blotters are made of highly compressible material and must not be thicker than 0.025". 	Grinding wheel, 30 mm wrench
2- 008 Put the cover plate in place. 2- 009 Use a 10 mm wrench to tighten the spark guard cover plate's (three) M6 hex bolts hand-tight by turning them clockwise. 	10 mm wrench

Maintenance 7-6 Changing the grinding wheel <continued>

Maintenance steps	Tools / materials
2- 0010 Turn the grinding wheel clockwise until the locking pin returns to its "released" position and the grinding wheel can be easily turned by hand. 	
3. Switch on the device 3- 001 Make sure that the locking pin has returned to its "released" position and that the grinding wheel can be easily turned by hand. 3- 002 Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20).	

7.8 Checking the screw connections to make sure they are secure

Ambient conditions
No special ambient conditions need to be observed.

Personnel
Specialized personnel

Tools and materials	Quantity
suitable wrench	1

Maintenance 7-7 Checking the screw connections to make sure they are secure

Maintenance steps	Tools / materials
1. Switch off the device	

Maintenance 7-7 Checking the screw connections to make sure they are secure <continued>

Maintenance steps	Tools / materials
1- 001 Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36).	
2. Check the screw connections 2- 001 Check all screw connections to make sure they are in place and secure. Replace any missing screw connections.	
3. Retighten the screw connections 3- 001 Use a suitable wrench to tighten all screw connections hand-tight by turning them clockwise.	suitable wrench
4. Switch on the device 4- 001 Carry out the commissioning (please refer to Chapter 3 "Commissioning" on page 20).	

8 TRANSPORTATION AND STORAGE

Summary

Provides information and uses instructions to explain the steps required for transportation, storage, and putting the machine back into operation.

8.1 Transporting the GW 110 +S



CAUTION

Due to ergonomic reasons, the rail web grinding machine is only allowed to be carried by one person if there are no batteries in the battery compartment.

If there are any batteries in the compartment, two people must carry the rail web grinding machine.

NOTICE

The batteries' transportation packaging must be labeled in accordance with all applicable hazardous material regulations!

NOTICE

When transporting the machine, make sure to comply with all safety and accident prevention regulations.

Follow the steps below to transport the battery-powered rail web grinding machine GW 110 +S correctly:

1. Carry out the decommissioning.

For more detailed information, please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36.

2. Transport the battery-powered rail web grinding machine by hand only as far as necessary, making sure to use the handles for this purpose.

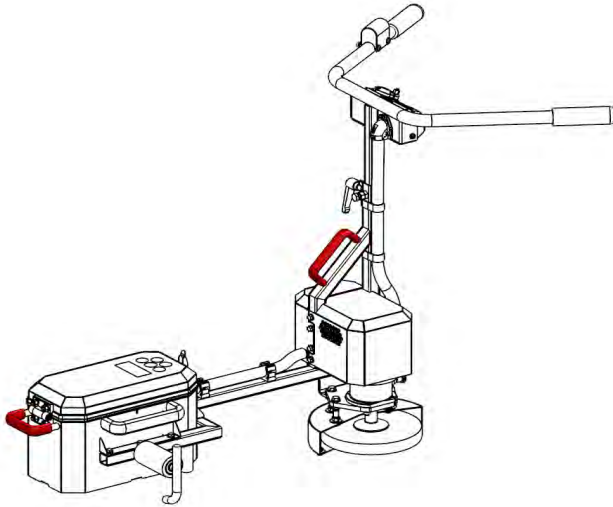
If the battery-powered rail web grinding machine needs to be transported across longer distances, make sure to use suitable equipment to transport it to its destination.

NOTICE

Do not, under any circumstance, pull on the corrugated hoses. If you are using ratchet straps or other securing devices, make sure that they are not exerting a load on the corrugated hoses.

NOTICE

Use suitable devices to secure the machine during transportation!
Use lashing straps to secure the rail web grinding machine in such a way that it will remain upright and cannot fall over and/or be damaged.



8.2 Storing the GW 110 +S

NOTICE

Storing the rail web grinding machine outdoors is strictly prohibited and will result in damage to the machine.

The following storage conditions need to be adhered to in order to properly store the machine (please refer to table 8-1):

Storage 8-1 Storage conditions

Conditions	
Ambient conditions	- Protected from exposure to UV - Not placed directly next to heaters or other heat sources - Dust-free
Storage temperature	0 °C to 40 °C (32 °F to 104 °F)
Relative humidity	40% to 60%

Follow the steps below to store the GW 110 +S battery-powered rail web grinding machine correctly:

1. Carry out the decommissioning.
For more detailed information, please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36.
2. Transport the battery-powered rail web grinding machine by hand only as far as necessary, making sure to use the handles for this purpose.
If the battery-powered rail web grinding machine needs to be transported across longer distances, make sure to use suitable equipment to transport it to its destination.

For more detailed information, please refer to Chapter 8.1 "Transporting the GW 110 +S" on page 62.

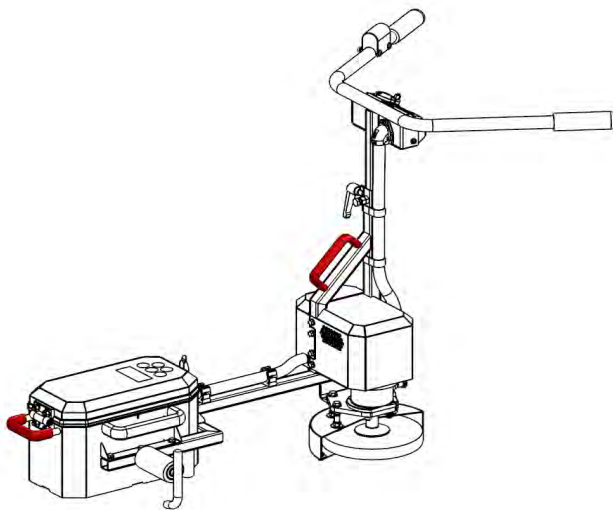
NOTICE

Do not, under any circumstance, pull on the corrugated hoses. If you are using ratchet straps or other securing devices, make sure that they are not exerting a load on the corrugated hoses.

NOTICE

Use suitable devices to secure the machine during transportation!

Use lashing straps to secure the rail web grinding machine in such a way that it will remain upright and cannot fall over and/or be damaged.



3. Remove the battery.

For more detailed information, please refer to Chapter 4.5 "Removing the batteries" on page 33.

4. Clean the GW 110 +S battery-powered rail web grinding machine.

For more detailed information, please refer to Chapter 7.4 "Cleaning the GW 110 +S" on page 49

5. Fix up any paint damage.

6. Apply a thin coating of oil to any areas that could rust.

7. Properly store the GW 110 +S battery-powered rail web grinding machine at the corresponding storage location.

NOTICE

Store the battery-powered rail web grinding machine on pallets or shelves (not directly on the floor or against walls) in order to prevent the ingress of moisture.

NOTICE

Store the battery-powered rail web grinding machine upright.

NOTICE

If necessary, use a protective cover/dust cover to protect internal parts from soiling and other impurities.

8.3 Putting the GW 110 +S back into operation

Follow the steps below in order to put the machine back into operation:

1. Remove the GW 110 +S from its storage location.
2. If you used a protective cover or dust cover, remove it.
3. Transport the GW 110 +S to the place where it will be used.
For more detailed information, please refer to Chapter 8.1 "Transporting the GW 110 +S" on page 62.
4. Insert the batteries.
For more detailed information, please refer to Chapter 4.1 "Inserting the batteries" on page 24.
5. Carry out the commissioning.
For more detailed information, please refer to Chapter 3 "Commissioning" on page 20.

9 DISPOSAL

Summary

How to properly dispose of the GW 110 +S and its components and/or accessories.

NOTICE

Comply with the disposal regulations that apply in the relevant U.S. state!

NOTICE

At the end of its service life, the GW 110 +S must be separated from unsorted municipal waste and properly disposed of in compliance with all applicable national and international laws and regulations.

NOTICE

The machine must be disposed of exclusively by trained specialized personnel or by specialized companies that have been tasked with this disposal.

Next Steps

1. Carry out the decommissioning (please refer to Chapter 5 "Decommissioning (Shutdown)" on page 36).
2. Remove the batteries (EGO Power+ 56V-ARC-Lithium™) from the GW 110 +S (please refer to Chapter 4.5 "Removing the batteries" on page 33).

NOTICE

Follow EGO's disposal instructions (please refer to Chapter 1.4 "Further applicable documents" on page 4).

3. Dispose of the battery-powered rail web grinding machine at an authorized recycling facility.

NOTICE

Comply with the disposal regulations that apply in the relevant U.S. state!

10 CUSTOMER SERVICE

Summary

Contact information for the manufacturer in the event that you need to get in touch in order to buy spare parts, return an old machine, or get a problem fixed.

10.1 Contact details

You can find the contact information in table 10-1 below:

Tab. 10-1 **Contact details**

Address	ELEKTRO-THERMIT GMBH & CO.KG A GOLDSCHMIDT COMPANY Chemiestraße 24 06132 Halle (Saale)
Telephone	+49 345 7795-600
Fax	+49 345 7795-770
email	et@goldschmidt.com
Internet	www.goldschmidt.com

ANNEX A - TECHNICAL DATA

NOTICE

Weitere technische Daten der Zulieferbauteile siehe Chapter 1.4 „Further applicable documents“ on page 4.

Tab. A-1 General data

General data	
Manufacturer	ELEKTRO-THERMIT GMBH & CO.KG A GOLDSCHMIDT COMPANY Chemiestraße 24 06132 Halle (Saale)
Device information	
Designation	Rail Web Grinding Machine (GW 110 +S)
Serial number	from GW 110 +S-0030

Tab. A-2 Technical data

Technical data	
Dimensions and weights	
Length	1260 mm / 49,60 Zoll
Height (min.)	710 mm / 27,95 Zoll
Height (max.)	930 mm / 36,61 Zoll
Width	720 mm / 28,34 Zoll
Weight (without grinding wheel and battery)	23 kg / 51 lbs
Torque (max.)	9 Nm
Power (max.)	3,4 kW / 4,6 PS
Drive Unit	
Quantity	2
Battery type	EGO Power+ 56V-ARC-Lithium™
Battery voltage	56 V
Battery capacity	12 Ah
Engine speed	3400 rpm
Temperature ranges/operating conditions	
Ambient temperature when operating the machine	-20 °C bis +40 °C ((-4°F bis +104°F)

Tab. A-2 Technical data

Technical data	
Ambient temperature when charging the battery	+5 °C bis +40 °C (+41°F bis +104°F)
Ambient temperature during storage	0 °C bis 40 °C (32 °F bis 104 °F)

Tab. A-3 Emissions

Emissions	
In technically perfect condition, the A-weighted emission sound level at the workplace during grinding is higher than 70 dB(A). Hearing protection approved for use in the track area must be worn.	
Sound pressure level (idling)	72 dB(A)
Sound pressure level (grinding)	84 dB(A)
Sound power level (idling)	85 dB(A)
Sound power level (grinding)	101 dB(A)
Hand-arm vibration (grinding), measured at the handles	5,2 m/s ²

**HEARING LOSS.**

Noise levels during grinding may result in permanent hearing loss.

Make sure to always wear hearing protection.

Individuals who are not working with or on the grinding machine must stay at a minimum distance of 1.5 m (59,05 Zoll).

Agree on clear and effective hand signals for communication.

ANNEX B - GENERAL DRAWINGS

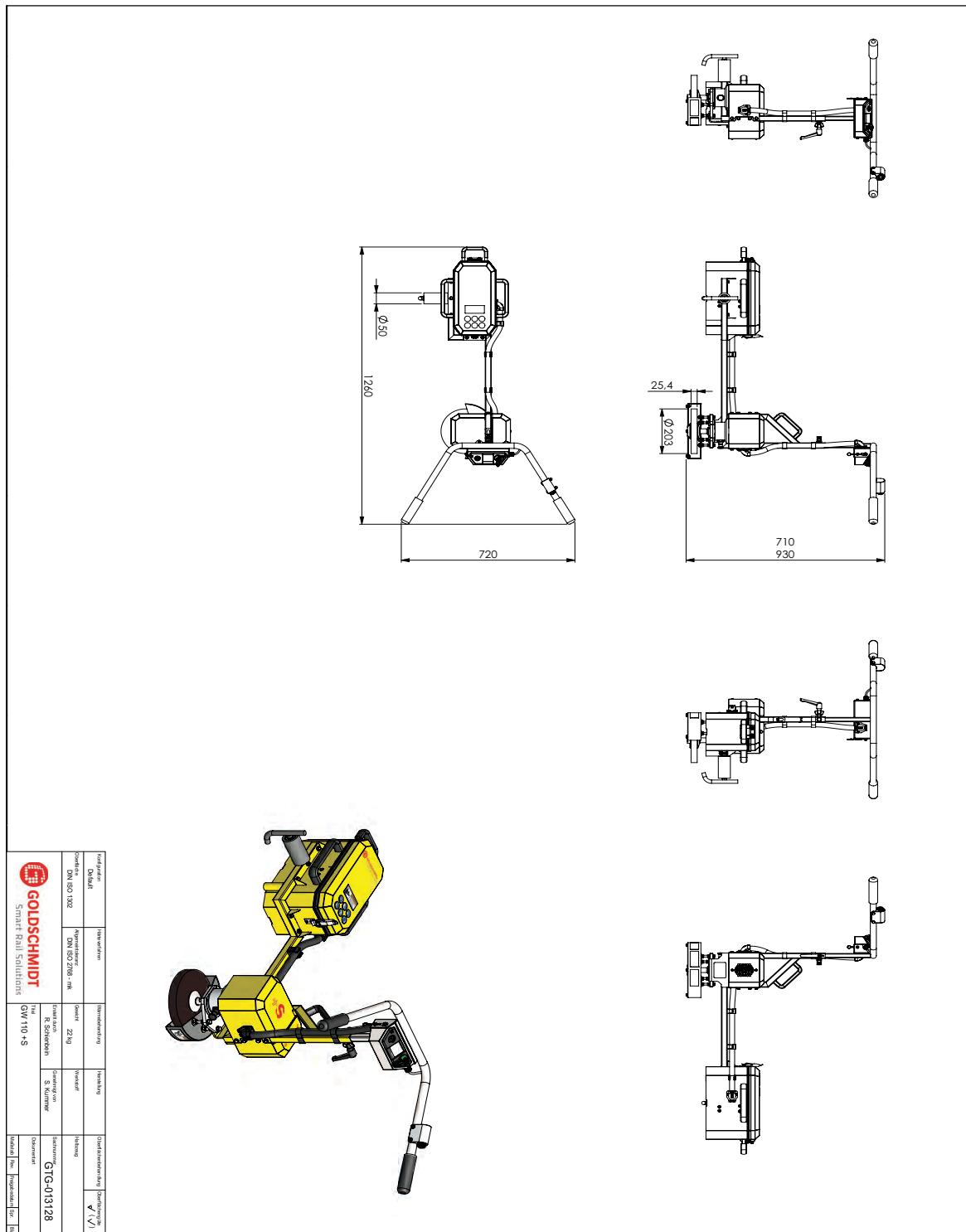


Fig. A-1 **General drawings**

ANNEX C - DECLARATION OF CONFORMITY

EC Declaration of Conformity

in accordance with EC Machinery Directive 2006/42/EG, Appendix II, No. 1 A

The manufacturer:

ELEKTRO-THERMIT GMBH & CO. KG
Chemiestr. 24
06132 Halle (Saale)

hereby declares that the following product

Trade designation: BATTERY WEB GRINDER

Product name: GW 110 +S

Serial number: GW110+S-XXXX

corresponds to all relevant provisions of EC Machinery Directive 2006/42/EC Appendix I.

Related harmonized standards
EN ISO 12100: 2011-03 Safety of machinery - General principles for design - Risk assessment and risk reduction
EN 13977:2011-04 Safety requirements for portable machinery and trolleys for construction and maintenance
ISO 3744:2010-10 Acoustics - Determination of sound power levels and sound energy levels of noise sources from sound pressure measurements [...]
ISO 11201:2010-10 Acoustics - Noise emission from machinery and equipment - Determination of emission sound pressure levels at workplaces [...]
EN ISO 5349-1:2001-12 Mechanical vibration - Measurement and evaluation of human exposure to hand-arm vibration - Part 1: General requirements
EN IEC 55014-1:2022-12 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar electrical appliances - Part 1: Emission
EN IEC 55014-2:2022-10 Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity

Mr. Sven Kummer, Am Schenkberg 20, 04349 Leipzig, Germany, is authorized to submit the technical documents.

Halle (Saale), 30.04.2025



Dr. Axel Hoeschen
Managing Director

ANNEX D - ACCESSORIES

When ordering accessories, you will need to provide your GW 110 +S's model and serial number. You can find this information on the rating plate (please refer to Chapter 2.4.1 "Rating plate" on page 8).

Tab. D-1 **Accessories**

Accessory	Quantity
EGO Power+ 56V-ARC-Lithium™ (12 Ah)	2
Air filter	1
Grinding wheel	1

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